

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.03.96
Test oil : ISO 4113
Combination No. : 0 403 476 075
Injection pump
Pump designation : PES6MW100/720RS1130
EP type number : 0 413 406 122
Governor
Governor design. : RSV350...750MWOA336
: 4
Governor no. : 0 420 085 160
Cust. part No. :

Customer spec. information
Customer : MB-NFZ
Motor : OM366A
Power KW : 84.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

A01

x inside diameter : 2.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 6.30

Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

governor spring
pre-tension
click setting x : 2.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 78.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 850

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750

rack travel mm : 11.00

Rated speed rpm : 779

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 751

rack travel mm : 11.00

Rated speed rpm : 780

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 752

rack travel mm : 11.00

Rated speed rpm : 781

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 753

rack travel mm : 11.00

Rated speed rpm : 782

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 754

rack travel mm : 11.00

Rated speed rpm : 783

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 755

rack travel mm : 11.00
Rated speed rpm : 784
Tolerance 1/min : \pm 4
rack travel mm : 4.00

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.30
Tolerance mm : \pm 0.50

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : \pm 30

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 95.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 11.0

A03

Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Speed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 400 466 096

Injection pump
Pump designation : PES6A75D410/3RS1326
EP type number : 0 410 476 977

Governor
Governor design. : RSV325...1400A8C742L
Governor no. : 0 420 232 342

Cust. part No. :

Customer spec. information
Customer : KHD
Motor : F6L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

A04

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 325

Rack travel in mm : 8.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Dimension a mm : 1.00

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.0
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.5

CONTROL LEVER

control lever
position degree : 65.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1600

rack travel mm : 4.00
Rated speed rpm : 1535

LOW IDLE

control lever
position degree : 17.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.60
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 8.10
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 675
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 11.55
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.20
Tolerance mm : + 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.04.97
Test oil :

Combination No. : 9 400 030 707FS

Injection pump
Pump designation :
EP type number :

Governor
Governor design. : RQV400...1250AB1320R
Governor no. : F 002 A30 000

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 145 BHP

TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 6.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.20
Tolerance mm : ± 0.05

Rack travel in mm : 8.45
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347
guide sleeve
travel mm : 8.48
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 880
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.25

Rated speed rpm : 499
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 549
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.37
Tolerance mm : \pm 0.25

Rated speed rpm : 1620
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 16.00
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 63.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 1325
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1455
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1525

LOW IDLE

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 8.45
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 760
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Rated speed rpm : 1250

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 750
Tolerance mm : \pm 0.05

Pressure hPa : -

Rated speed rpm : 550
rack travel mm : 11.25
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 445
rack travel mm : 11.95
Tolerance mm : \pm 0.20

Pressure hPa : 390
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 120
Rated speed rpm : < 300

Check
speed 1/min : > 100
Check
speed 1/min : < 340

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.50
Tolerance mm : \pm 0.50

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 056

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C935R
Governor no. : F 002 A20 240

Cust. part No. : DEP: 328 3856

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 148 HP

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.40

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 106.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1150
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1370

rack travel mm : 4.00
Rated speed rpm : 1255

LOW IDLE

control lever
position degree : 82.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 560
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.10
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.45
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 11.95
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 111.4
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Sproed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113

Combination No. : 0 402 034 700

Injection pump
Pump designation : PES4P120B120RS3379
EP type number : 0 412 024 702

Governor
Governor design. : RQV475...1100PA1314K
Governor no. : 0 421 815 543

Cust. part No. : 3928601

Customer-spec. information
Customer : CDC
Motor : 4BTA-A
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 475

Rack travel in mm : 6.10

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1163
guide sleeve
travel mm : 7.66
Tolerance mm : + 0.15

Rated speed rpm : 475
guide sleeve
travel mm : 1.59
Tolerance mm : + 0.20

Rated speed rpm : 931
guide sleeve
travel mm : 5.89
Tolerance mm : + 0.25

Rated speed rpm : 670
guide sleeve
travel mm : 3.53
Tolerance mm : + 0.25

Rated speed rpm : 1660
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.50
Rated speed rpm : 1155
Tolerance 1/min : + 15

rack travel mm : 6.60
Rated speed rpm : 1230
Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Control lever difference
Grad : 43.0
tolerance degree : + 6.0

Testing:

Rated speed rpm : 475
rack travel mm : 6.10
Tolerance mm : \pm 0.10

Rated speed rpm : 400
CRT mm min. : $>$ 7.60

Rated speed rpm : 550

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Rated speed rpm : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 9.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 765
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 415

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 425

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 9 400 030 739

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250A0C852R
Governor no. : 9 420 034 718

Cust. part No. : 3929403

Customer spec. information
Customer : CDC
Motor : 6BT
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 102.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 102.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 115.0

RATED SPEED

rack travel mm : 10.70
Rated speed rpm : 1320
Tolerance 1/min : ± 5

rack travel mm : 7.50
Rated speed rpm : 1365
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1450

rack travel mm : 7.50
Rated speed rpm : 1365

LOW IDLE

control lever
position degree : 87.0

Control lever difference
Grad : 28.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : ± 0.10

rack travel mm : > 2.00
Rated speed rpm : 580

Tolerance 1/min : + 30
Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 11.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 800

Pressure hPa : 620
rack travel mm : 11.65
Tolerance mm : + 0.20

Pressure hPa : 565
rack travel mm : 11.30
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113

Combination No. : 9 400 030 750

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1050A0C865R
Governor no. : F 002 A20 201

Cust. part No. : 3930156

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.25
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 100.5
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1110
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1260

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Control lever difference
Grad : 20.5
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.75
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 6.25
Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.30
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 14.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 11.00
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 650
rack travel mm : 12.65
Tolerance mm : + 0.20

Pressure hPa : 550
rack travel mm : 11.90
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113

Combination No. : 0 400 074 884

Injection pump
Pump designation : PES4M55C320RS184
EP type number : 0 410 054 938

Governor
Governor design. : RSF375/1900M77
Governor no. : 0 420 021 273

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-2.3L
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 16.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.4

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 4.70

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : \pm 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 39.4

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spread
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 5.60

Tolerance mm : \pm 0.25

Rated speed rpm : 2400

rack travel mm : 0.50

Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 4.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450

rack travel mm : 3.40

Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250

rack travel mm : $>$ 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 4.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.35

Tolerance mm : \pm 0.05

Rated speed rpm : 1850

rack travel mm : 12.30

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 940

rack travel mm : -0.10

Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : \pm 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1850
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
rack travel mm : 5.60
Tolerance mm : \pm 0.25
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10

Del. quantity
cm³/1000 strokes : 59.8
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : $>$ 47.00

control lever
position degree : $<$ 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 7.00
Tolerance mm : \pm 0.80
Del. quantity
cm³/1000 strokes : 15.3
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.04.97
Test oil : ISO 4113

Combination No. : 0 402 076 802

Injection pump
Pump designation : PES6P120A1320/5RS337
: 3
EP type number : 0 412 026 794

Governor
Governor design. : RSV350...1050P8A643
Governor no. : 0 421 833 555

Cust. part No. : 1385930

Customer-spec. information
Customer : SCANIA
Motor : DSI1171A,-C1156A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 226.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 7.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 5.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 226.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 7.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 54.0
tolerance degree : + 4.0

control lever
position degree : 104.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.30

Rated speed rpm : 1095

Tolerance 1/min : + 5

Check
speed 1/min : + 10

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min : + 15

Check
speed 1/min : + 20

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1215

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

control lever
position degree : 23.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 555
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 15.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 15.35
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 15.35
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 510
rack travel mm : 13.10
Tolerance mm : \pm 0.20

Pressure hPa : 780
rack travel mm : 14.50
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 603

Injection pump
Pump designation : PE8P120A720LS7427T
EP type number : 0 412 628 919

Governor
Governor design. : RQ750PA1227-1
Governor no. : 0 421 801 812

Cust. part No. : 1391886

Customer-spec. information
Customer : SCANIA
Motor : DSI(C)14...A,M

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration
damper
(RoBo diaphragm) : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-2A- 7- 3A- 4
: - 6
: element)

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 16.45

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 324.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 10.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 6.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : \pm 4.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 759
guide sleeve
travel mm : 4.86
Tolerance mm : \pm 0.15

Rated speed rpm : 797
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 850
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

B04

Rated speed rpm : 700

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 324.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 10.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 28.0
tolerance degree : \pm 4.0

control lever
position degree : 89.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 15.50

Rated speed rpm : 785
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 15.50

Rated speed rpm : 786
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 15.50

Rated speed rpm : 787
Tolerance 1/min : \pm 4

rack travel mm : 4.00
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 15.50

Rated speed rpm : 788
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 754
rack travel mm : 15.50

Rated speed rpm : 789
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 15.50

Rated speed rpm : 790
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 16.45
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 16.45

Tolerance mm : + 0.05
Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.50
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 420
rack travel mm : 13.60
Tolerance mm : + 0.20

Pressure hPa : 680
rack travel mm : 15.05
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 221.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.50
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000s. : + 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113
Combination No. : 0 402 648 926
Injection pump
Pump designation : PE8P120A320LS7840
EP type number : 0 412 628 850
Governor
Governor design. : RQ300/1050PA972-11
Governor no. : 0 421 801 739

Cust. part No. : 0220747002

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance cm ³ /1000S.	: + 4.0
<hr/>	
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance cm ³ /1000S.	: 11.0
<hr/>	

Rated speed rpm	: 300
Rack travel in mm	: 6.50
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 13.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1104
guide sleeve travel mm	: 6.37
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 300
guide sleeve travel mm	: 1.85
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 402
guide sleeve travel mm	: 3.68
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 540
guide sleeve travel mm	: 6.00

Tolerance mm	: + 0.10
Rated speed rpm	: 1290
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 194.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 11.0

CONTROL LEVER

control lever position degree	: 96.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.60
Rated speed rpm	: 1098
Tolerance 1/min	: + 8
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.75
Tolerance mm	: + 0.75
Rated speed rpm	: 1250

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 435
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 7.90

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1000
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 450
rack travel mm : 11.10
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 380
rack travel mm : 12.10
Tolerance mm : \pm 0.15

Pressure hPa : -

rack travel mm : 12.35
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 927

Injection pump
Pump designation : PE8P120A320LS7840
EP type number : 0 412 628 850

Governor
Governor design. : RQV300...1050PA797
: 8
Governor no. : 0 421 814 084

Cust. part No. : 0220747102

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

B10

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1100

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.60
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 86.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.90

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.60

Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Pressure hPa : 1000
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 450
rack travel mm : 11.10
Tolerance mm : \pm 0.15

MEASUREMENT

Pressure hPa : 380
rack travel mm : 12.10
Tolerance mm : \pm 0.15

Pressure hPa : -
rack travel mm : 12.35
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 678 833

Injection pump
Pump designation : PE8P120A720LS7358
EP type number : 0 412 628 899

Governor
Governor design. : RSV350...1100P8A652
: 1
Governor no. : 0 421 833 570

Cust. part No. : 1391880

Customer-spec. information
Customer : SCANIA
Motor : DSI1468M/-75M

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration
damper
(RoBo diaphragm) : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-2A- 7- 3A- 4
: - 6
: elemente)

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.95
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 283.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 8.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 42.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 283.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 8.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.95
Rated speed rpm : 1145
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1270

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 26.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 10.50

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.95
Tolerance mm : ± 0.05

Rated speed rpm : 1100
rack travel mm : 14.95
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.95
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.80
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 540
rack travel mm : 12.30
Tolerance mm : ± 0.20

Pressure hPa : 850
rack travel mm : 13.95
Tolerance mm : ± 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.80
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97

Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV550...1050POA672
Governor no. : 0 421 833 591

Cust. part No. : 0270746402

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.60

Tolerance mm	: +- 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 270.0
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm3/1000S.	: +- 4.0
<hr/>	
Spread	
<hr/>	
Tolerance cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance cm3/1000S.	: 9.0
<hr/>	

Rated speed rpm	: 550
<hr/>	
Rack travel in mm	: 3.80
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 19.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000S.	: +- 6.0
Spread	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 270.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0
Spread	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 90.0
tolerance degree	: +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1070
Tolerance 1/min	: +- 1
rack travel mm	: 14.60
<hr/>	
Rated speed rpm	: 1110
Tolerance 1/min	: +- 4
rack travel mm	: 4.00
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1200

Rated speed rpm	: 1071
Tolerance 1/min	: +- 1
rack travel mm	: 14.60

Rated speed rpm	: 1111
Tolerance 1/min	: +- 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1200

Rated speed rpm	: 1072
Tolerance 1/min	: +- 1
rack travel mm	: 14.60

Rated speed rpm	: 1112
Tolerance 1/min	: +- 4
rack travel mm	: 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1073
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1113
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1074
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1114
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1175
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1115
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 3.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

Rated speed rpm : 100
CRT mm min. : $>$ 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 15.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.60

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.50

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 11.00

Pressure hPa : 700
rack travel mm : 13.00

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.50
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Combination No. : 0 402 678 839

Injection pump
Pump designation : PE8P120A320LS7912
EP type number : 0 412 628 927

Governor
Governor design. : RSV550...1050POA681
Governor no. : 0 421 833 600

Cust. part No. : 028 074 2802

Customer-spec. information
Customer : MB-NFZ
Motor : OM402LA, Euro
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 120

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.70

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 208.0
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 550
<hr/>	
Rack travel in mm	: 3.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 18.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spreed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1030
Aneroid pressure hPa	: 1000

Del. quantity cm ³ /1000 strokes	: 208.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1070
Tolerance 1/min	: + 1
rack travel mm	: 12.70

Rated speed rpm	: 1110
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.55
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm	: 1071
Tolerance 1/min	: + 1
rack travel mm	: 12.70

Rated speed rpm	: 1111
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.55
Tolerance mm	: + 0.55

Rated speed rpm	: 1072
Tolerance 1/min	: + 1
rack travel mm	: 12.70

Rated speed rpm	: 1112
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.55
Tolerance mm	: + 0.55

Rated speed rpm	: 1073
Tolerance 1/min	: + 1
rack travel mm	: 12.70

Rated speed rpm	: 1113
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm : 0.55
Tolerance mm : \pm 0.55

Rated speed rpm : 1074
Tolerance 1/min : \pm 1
rack travel mm : 12.70

Rated speed rpm : 1114
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.55
Tolerance mm : \pm 0.55

Rated speed rpm : 1075
Tolerance 1/min : \pm 1
rack travel mm : 12.70

Rated speed rpm : 1115
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.55
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 3.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 13.70
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 14.70
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 14.20
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.70
Tolerance mm : \pm 0.15

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.40
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 650
rack travel mm : 13.40
Tolerance mm : \pm 0.15

Pressure hPa : 750
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97

Test oil : ISO 4113

Combination No. : 0 402 744 801

Injection pump

Pump designation : PES4P120A320RS7380

EP type number : 0 412 724 802

Governor

Governor design. : RQV275...1200PA1232K

Governor no. : 0 421 815 469

Cust. part No. : CCEP 5149B 66-237

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 04-02-26 B4

Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 105

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing

: 0-90-180-270

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

*NW before FB : 0.30

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

mm : 21.00

and maximum rack

travel : 11.00

Difference ° CS : 1.50

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1272

guide sleeve
travel mm : 9.31

Tolerance mm : + 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : + 0.20

Rated speed rpm : 894
guide sleeve
travel mm : 6.60
Tolerance mm : + 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1482

Rack travel in mm : 11.70
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1265

Tolerance 1/min : \pm 15
 rack travel mm : -8.80
 Rated speed rpm : 1410
 Tolerance 1/min : \pm 5
 rack travel mm : -12.30
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 253.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : -6.80
 Tolerance mm : \pm 0.10

Rated speed rpm : 200
 CRT mm min. : $<$ -4.70

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
 Rated speed rpm : 700
 rack travel mm : -1.15
 Tolerance mm : \pm 0.10

Rated speed rpm : 350
 rack travel mm : -2.90
 Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
 Pressure hPa : 1200

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -4.10
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1200
 Pressure hPa : 200
 rack travel mm : -3.40
 Tolerance mm : \pm 0.20

Pressure hPa : 320
 rack travel mm : -2.75
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 155
 Rated speed rpm : $<$ 275

Check
 speed 1/min : $>$ 135
 Check
 speed 1/min : $<$ 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 240.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 161.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 strokes : \pm 15.0
 Check tolerance
 cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Combination No. : 0 402 744 804

Injection pump
Pump designation : PES4P120A320RS7402
EP type number : 0 412 724 804

Governor
Governor design. : RQV275...1200PA1257K
Governor no. : 0 421 815 494

Cust. part No. : CCEP 5154A 66-238

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 A4
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.30
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00
Difference ° CS : 2.40

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1260
guide sleeve
travel mm : 10.32
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 938
guide sleeve
travel mm : 6.86
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 12.10
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 261.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 298.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1245

Tolerance 1/min : + 5
rack travel mm : -9.40
Rated speed rpm : 1405
Tolerance 1/min : + 15

rack travel mm : -12.90
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 252.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -8.90
Tolerance mm : + 0.10

Rated speed rpm : 225

CRT mm min. : < 7.40

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 850
rack travel mm : -1.00
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : + 0.20

Rated speed rpm : 700
rack travel mm : -1.80
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

Pressure hPa : -

C03

Rated speed rpm : 1200
rack travel mm : -3.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -2.40
Tolerance mm : + 0.20

Pressure hPa : 440
rack travel mm : -1.10
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 130
Rated speed rpm : < 275

Check
speed 1/min : > 110
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 850
Del. quantity
cm3/1000 strokes : 249.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 153.0
Tolerance
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000S. : + 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 183.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Combination No. : 0 402 744 808

Injection pump
Pump designation : PES4P120A320RS7402
EP type number : 0 412 724 804

Governor
Governor design. : RQV275...1200PA1257
: 1K
Governor no. : 0 421 815 553

Cust. part No. : CCEP5166 66-238

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 A4
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -10.30
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00
Difference ° CS : 2.40

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1260
guide sleeve
travel mm : 10.32
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 938
guide sleeve
travel mm : 6.86
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 12.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 261.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 298.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1245

Tolerance 1/min : \pm 5
rack travel mm : -9.40
Rated speed rpm : 1405
Tolerance 1/min : \pm 15

rack travel mm : -12.90
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 252.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -8.90
Tolerance mm : \pm 0.10

Rated speed rpm : 225

CRT mm min. : $<$ -7.40

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 850
rack travel mm : -1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : \pm 0.20

Rated speed rpm : 700
rack travel mm : -1.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

Pressure hPa : -

C07

Rated speed rpm : 1200
rack travel mm : -3.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -2.40
Tolerance mm : \pm 0.20

Pressure hPa : 440
rack travel mm : -1.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 130
Rated speed rpm : $<$ 275

Check
speed 1/min : $>$ 110
Check
speed 1/min : $<$ 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 249.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 846 302

Injection pump
Pump designation : PE6P120A320RS8520
EP type number : 0 412 826 202

Governor
Governor design. : RQV275...1000PA1269K
Governor no. : 0 421 815 969

Cust. part No. : 1310222/2

Customer-spec. information
Customer : DAF
Motor : XF 355 M
Power KW : 355.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 344.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 275

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 13.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1058
guide sleeve

travel mm : 9.97
Tolerance mm : ± 0.15

Rated speed rpm : 275
guide sleeve

travel mm : 2.04
Tolerance mm : ± 0.20

Rated speed rpm : 399
guide sleeve

travel mm : 3.39
Tolerance mm : ± 0.25

Rated speed rpm : 1260
guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1121

Rack travel in mm : 13.30
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 344.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.05
Rated speed rpm : 1045

Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1140

Tolerance 1/min : ± 15
Check
speed 1/min : ± 20

rack travel mm : 0.70
Tolerance mm : ± 0.70

Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 175

CRT mm min. : $>$ 7.00

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 14.05
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 12.45
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 9.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 750
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Pressure hPa : 380
rack travel mm : 10.30
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 361.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 199.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Combination No. : 0 403 436 111
Injection pump
Pump designation : PES6MW100/120RS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1200MW82-6
Governor no. : 0 420 083 184
Cust. part No. : 3916000

Customer-spec. information
Customer : CUMMINS/US
Motor : 6 CTA-830
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0
Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 10.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 12.35
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm ³ /1000S.	: + 3.0
--	---------

Speed

Tolerance cm ³ /1000 strokes	: 3.5
--	-------

Check tolerance cm ³ /1000S.	: 6.0
--	-------

Rated speed rpm	: 350
-----------------	-------

Rack travel in mm	: 7.20
-------------------	--------

Tolerance mm	: + 0.10
--------------	----------

Del. quantity cm ³ /1000 strokes	: 14.0
--	--------

Tolerance cm ³ /1000 strokes	: + 2.0
--	---------

Check tolerance cm ³ /1000S.	: + 4.0
--	---------

Speed

Tolerance cm ³ /1000 strokes	: 3.5
--	-------

Check tolerance cm ³ /1000S.	: 5.5
--	-------

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1250
-----------------	--------

guide sleeve travel mm	: 7.70
---------------------------	--------

Tolerance mm	: + 0.10
--------------	----------

Rated speed rpm	: 350
-----------------	-------

guide sleeve travel mm	: 1.40
---------------------------	--------

Tolerance mm	: + 0.20
--------------	----------

Rated speed rpm	: 800
-----------------	-------

guide sleeve travel mm	: 5.20
---------------------------	--------

Tolerance mm	: + 0.30
--------------	----------

Rated speed rpm	: 1350
-----------------	--------

guide sleeve travel mm	: 8.80
---------------------------	--------

Tolerance mm	: + 0.20
--------------	----------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure hPa	: 700
Del. quantity cm ³ /1000 strokes	: 141.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 98.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.30
----------------	---------

Rated speed rpm	: 1245
-----------------	--------

Tolerance 1/min	: + 5
-----------------	-------

rack travel mm	: 4.00
----------------	--------

Rated speed rpm	: 1385
-----------------	--------

Tolerance 1/min	: + 15
-----------------	--------

rack travel mm	: 0.50
----------------	--------

Tolerance mm	: + 0.50
--------------	----------

Rated speed rpm	: 1455
-----------------	--------

LOW IDLE

control lever position degree	: 67.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 7.20
Tolerance mm	: + 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 9.00
-------------	----------

Rated speed rpm	: 430
-----------------	-------

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 12.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Pressure hPa : 390
Rated speed rpm : 500
rack travel mm : 11.55
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Pressure hPa : 480
rack travel mm : 12.15
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 112.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113

Combination No. : 9 400 087 462

Injection pump
Pump designation : PES5P120A720LS7175
: 0
EP type number : 0 412 725 816

Governor
Governor design. : RQ300/1050PA774-7
Governor no. : 9 420 080 316

Cust. part No. : 0150740502

Customer-spec. information
Customer : MBB
Motor : OM449 LA
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.3

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-1/4-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.70
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 14.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Speed
Tolerance

cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve

travel mm : 7.00
Tolerance mm : + 0.20

Rated speed rpm : 300
guide sleeve

travel mm : 3.00
Tolerance mm : + 0.10

Rated speed rpm : 600
guide sleeve

travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve

travel mm : 6.65
Tolerance mm : + 0.15

Rated speed rpm : 1150
guide sleeve

travel mm : 8.75
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure

hPa : 850

Del. quantity
cm3/1000 strokes : 235.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
Tolerance

cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 37.0

tolerance degree : + 4.0

control lever
position degree : 99.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.70

Rated speed rpm : 1103

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1180

Tolerance 1/min : + 15

rack travel mm : 0.75

Tolerance mm : + 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

control lever
position degree : 12.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 385
Tolerance 1/min : \pm 20

Rated speed rpm : 100

CRT mm min. : $>$ 8.50

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 14.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 850

MEASUREMENT

Pressure hPa : 340
rack travel mm : -3.20
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : -1.10
Tolerance mm : \pm 0.10

Pressure hPa : 1160

rack travel mm : 0.25
Tolerance mm : \pm 0.05

Pressure hPa : 1240
rack travel mm : 0.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 232.5

Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1400
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 253.5

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 234.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 9 400 087 506
Injection pump
Pump designation : PES6P120A320/3RS3365
EP type number : 9 400 087 092

Governor
Governor design. : RSV450...900P7A628
Governor no. : 9 420 082 333

Cust. part No. : 3356095

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAAG
Power KW : 240.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

c20

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 264.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

Rated speed rpm	: 450
Rack travel in mm	: 4.50
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 18.0
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Aneroid pressure	
hPa	: -

Del. quantity	
cm3/1000 strokes	: 264.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 61.0
tolerance degree	: + 4.0
control lever	
position degree	: 111.0
tolerance degree	: + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 959
rack travel mm	: 10.80
Rated speed rpm	: 999
Tolerance 1/min	: + 4
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1030

Rated speed rpm	: 960
rack travel mm	: 10.80

Rated speed rpm	: 1000
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1030

Rated speed rpm	: 961
rack travel mm	: 10.80

Rated speed rpm	: 1001
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: + 0.50

Rated speed rpm : 1030

Rated speed rpm : 962
rack travel mm : 10.80

Rated speed rpm : 1002
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1030

Rated speed rpm : 963
rack travel mm : 10.80

Rated speed rpm : 1003
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1030

Rated speed rpm : 964
rack travel mm : 10.80

Rated speed rpm : 1004
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1030

LOW IDLE

control lever
position degree : 81.0
tolerance degree : + 4.0

control lever
position degree : 31.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.00
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 4.50

C22

Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 11.85
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 14.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113

Combination No. : 0 400 463 123

Injection pump
Pump designation : PES3A80D410/3RS1324
EP type number : 0 410 483 017

Governor
Governor design. : RSV325...1150A8C275L
Governor no. : 0 420 232 305

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 50.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 8.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Dimension a mm : 1.30

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.0

Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.60
Rated speed rpm : 1195
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1240

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 3.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 8.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 680
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 10.65
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 11.95
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.35
Tolerance mm : \pm 0.15

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.01.97
Test oil : ISO 4113

Combination No. : 0 400 463 125

Injection pump
Pump designation : PES3A80D410/3RS1324
EP type number : 0 410 483 017

Governor
Governor design. : RSV325...1400A8C495L
Governor no. : 0 420 232 302

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 50.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 9.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 13.0

Tolerance

cm³/1000 strokes : + 1.5

Check tolerance

cm³/1000S. : + 3.5

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 50.5

Tolerance

cm³/1000 strokes : + 0.5

Check tolerance

cm³/1000S. : + 2.0

Spread

Tolerance

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 4.0

CONTROL LEVER

control lever

position degree : 119.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.20

Rated speed rpm : 1445

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1485

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1700

rack travel mm : 4.00

Rated speed rpm : 1535

LOW IDLE

control lever

position degree : 72.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325

rack travel mm : 9.00

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 700

Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 10.20

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 11.55

Tolerance mm : + 0.05

Rated speed rpm : 955

rack travel mm : 10.90

Tolerance mm : \pm 0.10

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 400 464 113
Injection pump
Pump designation : PES4A75D410/3RS1255
EP type number : 0 410 474 966
Governor
Governor design. : RSV325...1150A8C494
: 4L
Governor no. : 0 420 232 572
Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F4L912
Power kW : 36.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 10.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance cm ³ /1000s.	:	4.0
--	---	-----

Rated speed rpm	:	325
Rack travel in mm	:	8.80
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	11.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000s.	:	+ 4.5
Spread Tolerance cm ³ /1000 strokes	:	2.0
Check tolerance cm ³ /1000s.	:	3.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1150
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	44.0
Tolerance cm ³ /1000 strokes	:	+ 0.5
Check tolerance cm ³ /1000s.	:	+ 2.0
Spread Tolerance cm ³ /1000 strokes	:	2.5
Check tolerance cm ³ /1000s.	:	4.0

CONTROL LEVER

control lever position degree	:	104.0
tolerance degree	:	+ 4.0

RATED SPEED rack travel mm	:	9.60
Rated speed rpm	:	1195
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1235
Tolerance 1/min	:	+ 15

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1350

LOW IDLE

control lever position degree	:	72.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	8.30
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	325
rack travel mm	:	8.80
Tolerance mm	:	+ 0.10

rack travel mm	:	2.00
Rated speed rpm	:	500
Tolerance 1/min	:	+ 30

TORQUE CONTROL

Rated speed rpm	:	1150
rack travel mm	:	10.65
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
rack travel mm	:	11.60
Tolerance mm	:	+ 0.10

Rated speed rpm	:	850
rack travel mm	:	11.35
Tolerance mm	:	+ 0.15

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113
Combination No. : 0 400 836 043
Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1200A31245R
Governor no. : 0 420 213 118

Cust. part No. :

Customer-spec. information
Customer : CDC
Motor : 6CT830
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet Line : 2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

D05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 10.80
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 115.0

Tolerance	
cm ³ /1000 strokes	: + 1.0

Check tolerance	
cm ³ /1000S.	: + 3.0

Speed

Tolerance	
cm ³ /1000 strokes	: 3.5

Check tolerance	
cm ³ /1000S.	: 8.0

Rated speed rpm	: 350
-----------------	-------

Rack travel in mm	: 4.60
-------------------	--------

Tolerance mm	: + 0.10
--------------	----------

Del. quantity	
cm ³ /1000 strokes	: 19.0

Tolerance	
cm ³ /1000 strokes	: + 2.0

Check tolerance	
cm ³ /1000S.	: + 4.5

Speed	
Tolerance	
cm ³ /1000 strokes	: 5.5

Check tolerance	
cm ³ /1000S.	: 9.0

Spread

Tolerance	
cm ³ /1000 strokes	: 5.5

Check tolerance	
cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1200
-----------------	--------

guide sleeve	
travel mm	: 6.90

Rated speed rpm	: 250
-----------------	-------

guide sleeve	
travel mm	: 0.10

Tolerance mm	: + 0.10
--------------	----------

Rated speed rpm	: 350
-----------------	-------

guide sleeve	
travel mm	: 1.25

Tolerance mm	: + 0.25
--------------	----------

Rated speed rpm	: 450
-----------------	-------

guide sleeve	
travel mm	: 2.15

Tolerance mm	: + 0.25
--------------	----------

Rated speed rpm	: 1350
-----------------	--------

guide sleeve	
travel mm	: 2.15

Tolerance mm	: + 0.25
--------------	----------

Rated speed rpm	: 1350
-----------------	--------

guide sleeve	
travel mm	: 2.15

Tolerance mm	: + 0.25
--------------	----------

Rated speed rpm	: 1350
-----------------	--------

guide sleeve	
travel mm	: 2.15

Tolerance mm	: + 0.25
--------------	----------

Rated speed rpm	: 1350
-----------------	--------

guide sleeve	
travel mm	: 2.15

Tolerance mm	: + 0.25
--------------	----------

guide sleeve	
travel mm	: 8.45
Tolerance mm	: + 0.25

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1250

Rack travel in mm	: 16.50
-------------------	---------

Tolerance mm	: + 1.30
--------------	----------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
-----------------	--------

Aneroid pressure	
hPa	: -

Del. quantity	
cm ³ /1000 strokes	: 115.0

Tolerance	
cm ³ /1000 strokes	: + 1.0

Check tolerance	
cm ³ /1000S.	: + 3.0

Speed	
Tolerance	
cm ³ /1000 strokes	: 3.5

Check tolerance	
cm ³ /1000S.	: 8.0

Spread	
Tolerance	
cm ³ /1000 strokes	: 3.5

Check tolerance	
cm ³ /1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 44.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 9.80
Rated speed rpm	: 1245
Tolerance 1/min	: + 5

rack travel mm	: 4.00
----------------	--------

Rated speed rpm	: 1330
-----------------	--------

Tolerance 1/min	: + 15
-----------------	--------

rack travel mm	: 4.00
----------------	--------

Rated speed rpm	: 1330
-----------------	--------

Tolerance 1/min	: + 15
-----------------	--------

rack travel mm	: 4.00
----------------	--------

Rated speed rpm	: 1330
-----------------	--------

Tolerance 1/min	: + 15
-----------------	--------

rack travel mm	: 4.00
----------------	--------

Rated speed rpm	: 1330
-----------------	--------

Tolerance 1/min	: + 15
-----------------	--------

LOW IDLE

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
Test oil : ISO 4113

Combination No. : 0 400 844 091

Injection pump
Pump designation : PES4A90D410RS2666
EP type number : 0 410 894 029

Governor
Governor design. : RQV300...1400AB1065
: 12L
Governor no. : 0 420 212 207

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM364
Power KW : 61.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0

Rated speed rpm	: 300
Rack travel in mm	: 8.70
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 10.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.5
Check tolerance	
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 59.5
Tolerance	
cm3/1000 strokes	: + 0.5
Check tolerance	
cm3/1000S.	: + 2.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0

CONTROL LEVER

control lever	
position degree	: 111.0
tolerance degree	: + 6.0

RATED SPEED

rack travel mm	: 9.50
Rated speed rpm	: 1445
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1550
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1650

LOW IDLE

control lever	
position degree	: 74.0
tolerance degree	: + 6.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 8.70
Tolerance mm	: + 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 10.20
-------------	-----------

Rated speed rpm	: 610
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1400
rack travel mm	: 10.55
Tolerance mm	: + 0.05

Rated speed rpm	: 475
rack travel mm	: 11.55
Tolerance mm	: + 0.05

Rated speed rpm	: 850
rack travel mm	: 11.00
Tolerance mm	: + 0.10

Start interlock

Rated speed rpm	: > 100
Rated speed rpm	: < 220

Check	
speed 1/min	: > 80
Check	
speed 1/min	: < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113
Combination No. : 0 400 844 095
Injection pump
Pump designation : PES4A95D410RS2809
EP type number : 0 410 894 993
Governor
Governor design. : RQV300...1400AB1065
: 23L
Governor no. : 0 420 212 227
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.95
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000s. : + 2.5
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	: 6.0
--	-------

Rated speed rpm	: 300
Rack travel in mm	: 8.50
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 10.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 4.5
Spread Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1450
Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 65.5
Tolerance cm ³ /1000 strokes	: + 0.5
Check tolerance cm ³ /1000S.	: + 2.5
Spread Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 113.0
tolerance degree	: + 6.0

RATED SPEED	
rack travel mm	: 8.90
Rated speed rpm	: 1455
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1550
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1670

LOW IDLE

control lever position degree	: 75.0
tolerance degree	: + 6.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 8.50
Tolerance mm	: + 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 9.60
-------------	----------

Rated speed rpm	: 625
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1400
rack travel mm	: 9.95
Tolerance mm	: + 0.05

Rated speed rpm	: 400
rack travel mm	: 10.80
Tolerance mm	: + 0.10

Rated speed rpm	: 670
rack travel mm	: 10.60
Tolerance mm	: + 0.10

Rated speed rpm	: 1060
rack travel mm	: 10.25
Tolerance mm	: + 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
Test oil : ISO 4113
Combination No. : 0 400 844 099
Injection pump
Pump designation : PES4A95D410RS2837
EP type number : 0 410 894 991
Governor
Governor design. : RGV300...1400AB1065
: 29L
Governor no. : 0 420 212 247
Cust. part No. : 024 074 48 02

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.25
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.85
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1453
guide sleeve
travel mm : 8.77
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.35
Tolerance mm : + 0.25

Rated speed rpm : 921
guide sleeve
travel mm : 5.42
Tolerance mm : + 0.25

Rated speed rpm : 367
guide sleeve
travel mm : 2.41
Tolerance mm : + 0.25

Rated speed rpm : 417
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.25

Rated speed rpm : 490
guide sleeve
travel mm : 3.42
Tolerance mm : + 0.25

Rated speed rpm : 1740

guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : + 6.0

RATED SPEED
rack travel mm : 7.85
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1520
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 100
CRT mm min. : $>$ 6.50
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 8.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.50

Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 844 101

Injection pump
Pump designation : PES4A95D410RS2809
EP type number : 0 410 894 993

Governor
Governor design. : RQV300...1400AB1065
: 23L
Governor no. : 0 420 212 227

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet Line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.95
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 65.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	:	6.0
--	---	-----

Rated speed rpm	:	300
-----------------	---	-----

Rack travel in mm	:	8.60
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	10.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 4.5
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1463
guide sleeve travel mm	:	8.14
Tolerance mm	:	+ 0.25

Rated speed rpm	:	300
guide sleeve travel mm	:	1.06
Tolerance mm	:	+ 0.25

Rated speed rpm	:	927
guide sleeve travel mm	:	4.88
Tolerance mm	:	+ 0.25

Rated speed rpm	:	593
guide sleeve travel mm	:	3.46
Tolerance mm	:	+ 0.25

Rated speed rpm	:	643
guide sleeve travel mm	:	3.86
Tolerance mm	:	+ 0.25

Rated speed rpm	:	610
guide sleeve travel mm	:	3.76
Tolerance mm	:	+ 0.25

Rated speed rpm	:	1810
-----------------	---	------

guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1450
Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1400
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	65.5
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 3.0
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	113.0
tolerance degree	:	+ 6.0

RATED SPEED		
rack travel mm	:	8.90
Rated speed rpm	:	1455
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1550
Tolerance 1/min	:	+ 15

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1670

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 6.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.60

Rated speed rpm : 625

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 630
rack travel mm : 10.85
Tolerance mm : \pm 0.15

Rated speed rpm : 925
rack travel mm : 10.55
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Aneroid pressure
hPa : -
Rated speed rpm : 630
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Aneroid pressure
hPa : -
Rated speed rpm : 925
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 844 102
Injection pump
Pump designation : PES4A95D410RS2809
EP type number : 0 410 894 993
Governor
Governor design. : RQV300...1400AB1065
: 27L
Governor no. : 0 420 212 238
Cust. part No. : 024 074 50 02

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power kW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 65.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	: 6.0
--	-------

Rated speed rpm	: 300
Rack travel in mm	: 8.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 10.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 4.5
Spread Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1463
guide sleeve travel mm	: 8.14
Tolerance mm	: + 0.25

Rated speed rpm	: 300
guide sleeve travel mm	: 1.06
Tolerance mm	: + 0.25

Rated speed rpm	: 927
guide sleeve travel mm	: 4.88
Tolerance mm	: + 0.25

Rated speed rpm	: 593
guide sleeve travel mm	: 3.46
Tolerance mm	: + 0.25

Rated speed rpm	: 643
guide sleeve travel mm	: 3.86
Tolerance mm	: + 0.25

Rated speed rpm	: 610
guide sleeve travel mm	: 3.76
Tolerance mm	: + 0.25

Rated speed rpm	: 1810
-----------------	--------

guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1450
Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 65.5
Tolerance cm ³ /1000 strokes	: + 0.5
Check tolerance cm ³ /1000S.	: + 2.5
Spread Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 113.0
tolerance degree	: + 6.0

RATED SPEED rack travel mm	: 8.90
Rated speed rpm	: 1455
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1550
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1670

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 6.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.60

Rated speed rpm : 625

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 670
rack travel mm : 10.70
Tolerance mm : \pm 0.10

Rated speed rpm : 1060
rack travel mm : 10.25
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 400 844 105

Injection pump
Pump designation : PES4A95D41ORS2837
EP type number : 0 410 894 991

Governor
Goverrier design. : RQV300...140GAB1065
: 33L
Governor no. : 0 420 212 249

Cust. part No. : 026 074 08 02

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power kW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000s.	:	8.0
--	---	-----

Rated speed rpm	:	300
Del. quantity cm ³ /1000 strokes	:	12.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000s.	:	+ 4.5
Spread Tolerance cm ³ /1000 strokes	:	5.5
Check tolerance cm ³ /1000s.	:	9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1450
Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1400
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	72.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000s.	:	+ 3.0
Spread Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000s.	:	8.0

CONTROL LEVER

control lever position degree	:	112.0
----------------------------------	---	-------

RATED SPEED		
rack travel mm	:	7.85
Rated speed rpm	:	1445
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1525
Tolerance 1/min	:	+ 15

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1670

LOW IDLE

control lever position degree	:	66.0
----------------------------------	---	------

Setting point w/out bumper spring

Rated speed rpm	:	300
rack travel mm	:	5.00
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	100
CRT mm min.	:	> 6.50

TORQUE CONTROL

Rated speed rpm	:	1400
rack travel mm	:	8.85
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
rack travel mm	:	8.90
Tolerance mm	:	+ 0.10

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 220

Check speed 1/min	:	> 80
Check speed 1/min	:	< 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.08.96
Test oil : ISO 4113

Combination No. : 0 400 844 106

Injection pump
Pump designation : PES4A95D410RS2837
EP type number : 0 410 894 991

Governor
Governor design. : RQV300...1400AB1065
: 33L
Governor no. : 0 420 212 249

Cust. part No. : 026 074 09 02

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm3/1000S.	:	8.0
-------------------------------	---	-----

Rated speed rpm	:	300
Del. quantity cm3/1000 strokes	:	12.0
Tolerance cm3/1000 strokes	:	+ 2.0
Check tolerance cm3/1000S.	:	+ 4.5
Spreed Tolerance cm3/1000 strokes	:	5.5
Check tolerance cm3/1000S.	:	9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1460
guide sleeve travel mm	:	8.25
Tolerance mm	:	+ 0.05

Rated speed rpm	:	300
guide sleeve travel mm	:	1.05
Tolerance mm	:	+ 0.25

Rated speed rpm	:	600
guide sleeve travel mm	:	3.80
Tolerance mm	:	+ 0.25

Rated speed rpm	:	1040
guide sleeve travel mm	:	5.50
Tolerance mm	:	+ 0.10

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1450

Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1400
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	72.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 3.0
Spreed Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	8.0

CONTROL LEVER

control lever position degree	:	112.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	7.85
Rated speed rpm	:	1445
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1525
Tolerance 1/min	:	+ 15

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1670

LOW IDLE

control lever position degree	:	66.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	300
rack travel mm	:	5.00
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	100
CRT mm min.	:	> 6.50

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 8.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed

Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113
Combination No. : 0 400 846 559
Injection pump
Pump designation : PES6A90D410RS2710
EP type number : 0 410 896 082
Governor
Governor design. : RQV300...1400AB1065
: 9L
Governor no. : 0 420 212 202
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power kW : 92.0

TEST BENCH REQUIREMENTS

Inlet Line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 10.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Speed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 8.80

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 59.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 2.5
Spread
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 9.30
Rated speed rpm : 1445
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1555
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 6.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 10.30

Rated speed rpm : 655

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 10.40

Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check speed 1/min : > 80

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 46.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure

hPa : -

Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 49.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 17.20

Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 83.0

Tolerance
cm³/1000 strokes : \pm 7.5

Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113
Combination No. : 0 400 846 592
Injection pump
Pump designation : PES6A95D410RS2797
EP type number : 0 410 896 900
Governor
Governor design. : RQV300...1200AB1065
: 24L
Governor no. : 0 420 212 228

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power kW : 92.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

E04

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.80

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(3) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 8.90
Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 6.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.80
Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 9.60

Rated speed rpm : 575

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 9.95
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.80
Tolerance mm : + 0.10

Rated speed rpm : 840
rack travel mm : 10.35
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000s. : ± 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 846 614

Injection pump
Pump designation : PES6A95D410RS2844
EP type number : 0 410 896 893

Governor
Governor design. : RQV300...1400AB1065
: 31L
Governor no. : 0 420 212 246

Cust. part No. : 024 074 9702

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

E07

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 74.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1450
guide sleeve
travel mm : 8.10
Tolerance mm : ± 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.10
Tolerance mm : ± 0.25

Rated speed rpm : 925
guide sleeve
travel mm : 4.80
Tolerance mm : ± 0.20

Rated speed rpm : 590
guide sleeve
travel mm : 3.50
Tolerance mm : ± 0.25

Rated speed rpm : 640
guide sleeve
travel mm : 3.90
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 74.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.75
Rated speed rpm : 1445
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1525
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 64.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 4.50
Tolerance mm : \pm 0.10
Rated speed rpm : 100
CRT mm min. : $>$ 6.00

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 8.75
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.80
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

E09

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
Test oil : ISO 4113

Combination No. : 0 400 846 616

Injection pump
Pump designation : PES6A95D410RS2844
EP type number : 0 410 896 893

Governor
Governor design. : RQV300...1400AB1065
: 32L
Governor no. : 0 420 212 248

Cust. part No. : 025 074 5902

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 95.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 67.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1452
guide sleeve
travel mm : 8.03
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.06
Tolerance mm : + 0.25

Rated speed rpm : 593
guide sleeve
travel mm : 3.46
Tolerance mm : + 0.25

Rated speed rpm : 643
guide sleeve
travel mm : 3.84
Tolerance mm : + 0.25

Rated speed rpm : 1030
guide sleeve
travel mm : 5.33
Tolerance mm : + 0.25

Rated speed rpm : 1820
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 67.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 8.70
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1535
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 6.50

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.70
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 864 074
Injection pump
Pump designation : PES4A85D410/3RS2638
EP type number : 0 410 884 950
Governor
Governor design. : RSV325...1150A0C2168
: -4L
Governor no. : 0 420 232 524

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : BF4L913T
Power kW : 60.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance cm ³ /1000S.	:	5.0
--	---	-----

Rated speed rpm	:	325
-----------------	---	-----

Rack travel in mm	:	9.20
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	19.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 5.0
Speed Tolerance cm ³ /1000 strokes	:	2.5
Check tolerance cm ³ /1000S.	:	4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800

Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20

governor spring pre-tension click setting x	:	4.00
---	---	------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1150
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	72.0
Tolerance cm ³ /1000 strokes	:	+ 0.5
Check tolerance cm ³ /1000S.	:	+ 2.5
Speed Tolerance cm ³ /1000 strokes	:	3.0
Check tolerance cm ³ /1000S.	:	5.0

CONTROL LEVER

control lever position degree	:	105.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	10.40
Rated speed rpm	:	1195
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1285
Tolerance 1/min	:	+ 15

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1500

rack travel mm	:	4.00
Rated speed rpm	:	1310

LOW IDLE

control lever position degree	:	80.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	8.70
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	325
rack travel mm	:	9.20
Tolerance mm	:	+ 0.10

rack travel mm	:	2.00
Rated speed rpm	:	600
Tolerance 1/min	:	+ 30

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 19.50
-------------	---	---------

TORQUE CONTROL

Rated speed rpm	:	1150
rack travel mm	:	11.45
Tolerance mm	:	+ 0.05

Rated speed rpm : 500
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 940
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000s. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 400 866 125

Injection pump
Pump designation : PES6A85D410/3RS2761
EP type number : 0 410 886 895

Governor
Governor design. : RSV325...1150A3C810
Governor no. : 0 420 232 608

Cust. part No. : .

Customer-spec. information
Customer : KHD
Motor : BF6L913
Power KW : 112.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 7.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure

hPa : 700

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1195
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1410

rack travel mm : 4.00
Rated speed rpm : 1255

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 7.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : 20.25

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 855
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 350
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.06.96
Test oil : ISO 4113

Combination No. : 0 400 866 188

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV425...750A4C2213
: 5R
Governor no. : 0 420 233 326

Cust. part No. :

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3 L
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 2.0

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 145.5
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.5
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

Rated speed rpm	: 425
Rack travel in mm	: 6.10
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 20.0
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S.	: +- 4.5
Speed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 750
Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 145.5

Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.5
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 90.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 13.00
Rated speed rpm	: 800
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 840
Tolerance 1/min	: +- 15

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 950

rack travel mm	: 4.00
Rated speed rpm	: 845

LOW IDLE

control lever position degree	: 80.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 5.60
Tolerance mm	: +- 0.10

Testing:

Rated speed rpm	: 425
rack travel mm	: 6.10
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
CRT mm min.	: > 19.50

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 866 219

Injection pump
Pump designation : PES6A95D120RS2860
EP type number : 0 410 896 889

Governor
Governor design. : RSV410...1050A0C2260
 : -3R
Governor no. : 0 420 233 344

Cust. part No. : 32 82 684

Customer-spec. information
Customer : CUMMINS
Motor : 6 BT
Power kW : 113.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.15
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery blocking

*NW after s.o.d. : 11.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.90
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 97.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0
Rated speed rpm	: 430
Rack travel in mm	: 7.20
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 21.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 5.5
Check tolerance	
cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 1.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1100
Del. quantity	
cm3/1000 strokes	: 97.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 90.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 9.90
Rated speed rpm	: 1095
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1140
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1330

rack travel mm	: 4.00
Rated speed rpm	: 1175

LOW IDLE

control lever	
position degree	: 70.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 430
rack travel mm	: 6.70
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 430
rack travel mm	: 7.20
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 590
Tolerance 1/min	: + 30

Rated speed rpm : 100
CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Rated speed rpm : 450
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1100
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 420
rack travel mm : 10.10
Tolerance mm : \pm 0.10

Pressure hPa : 730
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 98.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 874 255
Injection pump
Pump designation : PES4A95D410RS2685
EP type number : 0 410 894 996
Governor
Governor design. : RSV400...1000A1C2278
: L
Governor no. : 0 420 232 602
Cust. part No. : 9275740

Customer-spec. information
Customer : LIEBHERR
Motor : D904 T
Power KW : 96.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Beginning of delivery differende
and maximum rack
travel : 9.00
Tolerance mm : ± 0.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.45
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 129.0
Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 400

Rack travel in mm : 7.20

Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 20.0

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Speed

Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 129.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0
Speed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.45
Rated speed rpm : 1045
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1080
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1110

LOW IDLE

control lever
position degree : 69.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 6.70
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 7.20
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Pressure hPa : 410
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 876 337
Injection pump
Pump designation : PES6A90D410RS2710
EP type number : 0 410 896 082
Governor
Governor design. : RSV350...1400A0C1135
: -2L
Governor no. : 0 420 232 473
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 96.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 10.85
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.5
Speed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 350

Rack travel in mm : 9.10
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 61.0

Tolerance
cm3/1000 strokes : + 0.5

Check tolerance
cm3/1000S. : + 2.5

Spread
Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1630

rack travel mm : 4.00
Rated speed rpm : 1530

rack travel mm : 9.80
Rated speed rpm : 1445
Tolerance 1/min : + 5

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1435
rack travel mm : 9.80

Rated speed rpm : 1479
Tolerance 1/min : + 4
rack travel mm : 4.00

Rated speed rpm : 1436
rack travel mm : 9.80

Rated speed rpm : 1480
Tolerance 1/min : + 4
rack travel mm : 4.00

Rated speed rpm : 1437
rack travel mm : 9.80

Rated speed rpm : 1481
Tolerance 1/min : + 4
rack travel mm : 4.00

Rated speed rpm : 1438
rack travel mm : 9.80

Rated speed rpm : 1482
Tolerance 1/min : + 4
rack travel mm : 4.00

Rated speed rpm : 1439
rack travel mm : 9.80

Rated speed rpm : 1483
Tolerance 1/min : \pm 4
rack travel mm : 4.00

Rated speed rpm : 1440
rack travel mm : 9.80

Rated speed rpm : 1484
Tolerance 1/min : \pm 4
rack travel mm : 4.00

LOW IDLE

Testing:

Rated speed rpm : 350
rack travel mm : 9.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

Rated speed rpm : 100
CRT mm min. : $>$ 19.50

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 11.55
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 876 397
Injection pump
Pump designation : PES6A95D410RS2797
EP type number : 0 410 896 900
Governor
Governor design. : RSV350...1400AOC2006
: -8L
Governor no. : 0 420 232 580
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1380
Rack travel in mm : 10.15
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 8.10

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 62.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1430
rack travel mm : 9.10

Rated speed rpm : 1496
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1431
rack travel mm : 9.10

Rated speed rpm : 1497
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1432
rack travel mm : 9.10

Rated speed rpm : 1498
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1433
rack travel mm : 9.10

Rated speed rpm : 1499
Tolerance 1/min : ± 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1650

Rated speed rpm : 1434
rack travel mm : 9.10

Rated speed rpm : 1500
Tolerance 1/min : + 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1650

Rated speed rpm : 1435
rack travel mm : 9.10

Rated speed rpm : 1501
Tolerance 1/min : + 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 8.10
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

TORQUE CONTROL

Rated speed rpm : 1380
rack travel mm : 10.15
Tolerance mm : + 0.05

Rated speed rpm : 400
rack travel mm : 11.45

Tolerance mm : + 0.15

Rated speed rpm : 630
rack travel mm : 11.05
Tolerance mm : + 0.15

Rated speed rpm : 925
rack travel mm : 10.55
Tolerance mm : + 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 630
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 925
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.80
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + 7.5
Check tolerance
cm³/1000S. : + 10.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 876 404

Injection pump
Pump designation : PES6A95D410RS2835
EP type number : 0 410 896 896

Governor
Governor design. : RSV650...1050A8C2263
: L
Governor no. : 0 420 232 583

Cust. part No. : 87 800 648

Customer-spec. information
Customer : FNH-GEOTECH
Motor : 7.5 L
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 650

Rack travel in mm : 5.40
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 23.5

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Speed
Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 151.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Speed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1078
rack travel mm : 12.10

Rated speed rpm : 1118
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1079
rack travel mm : 12.10

Rated speed rpm : 1119
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1080
rack travel mm : 12.10

Rated speed rpm : 1120
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1081
rack travel mm : 12.10

Rated speed rpm : 1121
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1082
rack travel mm : 12.10

Rated speed rpm : 1122
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1083
rack travel mm : 12.10

Rated speed rpm : 1123
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 5.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 700
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 14.50
Tolerance mm : + 0.10

Rated speed rpm : 1025
rack travel mm : 12.80
Tolerance mm : + 0.10

Rated speed rpm : 1025
rack travel mm : 13.30
Tolerance mm : + 0.10

Rated speed rpm : 975
rack travel mm : 13.65
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.50
Tolerance mm : + 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 325
rack travel mm : 10.70
Tolerance mm : + 0.20

Pressure hPa : 550
rack travel mm : 13.55
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 876 405
Injection pump
Pump designation : PES6A95D410RS2835
EP type number : 0 410 896 896
Governor
Governor design. : RSV400...1050A2C2263
: -8L
Governor no. : 0 420 232 615
Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Motor : 7.5 L-8640 Trak
Power KW : 131.0

TEST BENCH REQUIREMENTS

Inlet Line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 12.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5

Rated speed rpm : 450
 Rack travel in mm : 5.70
 Tolerance mm : + 0.10
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 strokes : + 2.0
 Check tolerance
 cm3/1000S. : + 4.5
 Spreed
 Tolerance
 cm3/1000 strokes : 3.5
 Check tolerance
 cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 110.0
 Tolerance
 cm3/1000 strokes : + 2.0
 Check tolerance
 cm3/1000S. : + 4.5

CONTROL LEVER

control lever
 position degree : 101.0
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
 rack travel mm : 11.20
 Rated speed rpm : 1168
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300
 Rated speed rpm : 1094
 rack travel mm : 11.20
 Rated speed rpm : 1169
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300
 Rated speed rpm : 1095
 rack travel mm : 11.20
 Rated speed rpm : 1170
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300
 Rated speed rpm : 1096
 rack travel mm : 11.20
 Rated speed rpm : 1171
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300
 Rated speed rpm : 1097
 rack travel mm : 11.20
 Rated speed rpm : 1172
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300

Rated speed rpm	:	1098
rack travel mm	:	11.20
Rated speed rpm	:	1173
Tolerance 1/min	:	+ 5
rack travel mm	:	4.00
rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1300

LOW IDLE

control lever		
position degree	:	77.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	450
rack travel mm	:	5.20
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	450
rack travel mm	:	5.70
Tolerance mm	:	+ 0.10

rack travel mm	:	2.00
Rated speed rpm	:	600
Tolerance 1/min	:	+ 30

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 19.50
-------------	---	---------

TORQUE CONTROL

Rated speed rpm	:	1050
rack travel mm	:	12.20
Tolerance mm	:	+ 0.10

Rated speed rpm	:	750
rack travel mm	:	14.10
Tolerance mm	:	+ 0.10

Rated speed rpm	:	925
rack travel mm	:	13.25
Tolerance mm	:	+ 0.15

Rated speed rpm	:	1050
rack travel mm	:	11.70
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	14.10
Tolerance mm	:	+ 0.10

Pressure hPa	:	-
Rated speed rpm	:	500
rack travel mm	:	10.25
Tolerance mm	:	+ 0.05

MEASUREMENT

Rated speed rpm	:	500
-----------------	---	-----

Pressure hPa	:	500
rack travel mm	:	11.55
Tolerance mm	:	+ 0.20

Pressure hPa	:	800
rack travel mm	:	13.55
Tolerance mm	:	+ 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	750
Del. quantity		
cm ³ /1000 strokes	:	137.5
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000S.	:	+ 3.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	3.5
Check tolerance		
cm ³ /1000S.	:	6.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm ³ /1000 strokes	:	90.0
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000S.	:	+ 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 876 406
Injection pump
Pump designation : PES6A95D410RS2835
EP type number : 0 410 896 896
Governor
Governor design. : RSV400...1050A2C2263
: -9L
Governor no. : 0 420 232 616
Cust. part No. :

Customer-spec. information

Customer : FNH-GEOTECH
Motor : 7.5 L-8740 Trak
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 13.45
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 132.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 450

Rack travel in mm : 5.10

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 96.0

tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.40

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 70.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 450

rack travel mm : 5.10

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 620

Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 13.45

Tolerance mm : ± 0.05

Rated speed rpm : 650

rack travel mm : 15.10

Tolerance mm : ± 0.10

Rated speed rpm : 900

rack travel mm : 14.30

Tolerance mm : ± 0.20

Rated speed rpm : 1050

rack travel mm : 12.95
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.10
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 650
rack travel mm : 12.15
Tolerance mm : \pm 0.20

Pressure hPa : 900
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 876 428

Injection pump
Pump designation : PES6A85D410RS2761-1
EP type number : 0 410 886 894

Governor
Governor design. : RSV325...1200A0C816L
Governor no. : 0 420 232 614

Cust. part No. : 0 423 1261 KY0150

Customer-spec. information
Customer : KHD
Motor : BF6L913
Power KW : 109.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 82.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 8.00

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 16.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread

Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 82.0
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 2.5
Spread
Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1245
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1460

rack travel mm : 4.00
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 18.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 400 876 439

Injection pump
Pump designation : PES6A90D410RS2757
EP type number : 0 410 896 086

Governor
Governor design. : RSV425...1050A5C2266
: -1L
Governor no. : 0 420 232 638

Cust. part No. : 112069

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8065.25.699
Power KW : 99.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 93.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0
Rated speed rpm	: 425
Rack travel in mm	: 6.70
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 10.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.5
Check tolerance	
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 93.0
Tolerance	
cm3/1000 strokes	: + 0.5
Check tolerance	
cm3/1000S.	: + 2.5
Spreed	

Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0

CONTROL LEVER

control lever	
position degree	: 113.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 10.80
Rated speed rpm	: 1095
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1170
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1365

rack travel mm	: 4.00
Rated speed rpm	: 1215

LOW IDLE

control lever	
position degree	: 88.5
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 6.20
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 425
rack travel mm	: 6.70
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 677
Tolerance 1/min	: + 30

TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 11.80

Tolerance mm : \pm 0.05
Rated speed rpm : 500
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.20
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 475
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.03.97
Test oil : ISO 4113

Combination No. : 9 400 030 696

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250A0C826R
Governor no. : 9 420 034 700

Cust. part No. : 3928662

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 165 HP

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1315

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1415

Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1500

rack travel mm : 4.00
Rated speed rpm : 1420

Tolerance 1/min : ± 0.05

LOW IDLE

control lever
position degree : 85.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 575
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 655
rack travel mm : 12.30
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 113.8
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 88.8
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : F 002 A0Z 034
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215
Governor
Governor design. : RSV475...1100AGC912R
Governor no. : F 002 A20 224

Cust. part No. : DEP: 3283575

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 135 HP

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.2

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.40
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension

click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 95.2

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.85
Rated speed rpm : 1150
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1370

rack travel mm : 4.00
Rated speed rpm : 1240

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 580
rack travel mm : 12.30
Tolerance mm : \pm 0.20

Pressure hPa : 475
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 107.2
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 76.3
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113
Combination No. : F 002 A0Z 051
Injection pump
Pump designation : PES4A95D320/3RS2920
EP type number : F 002 A10 012
Governor
Governor design. : RSV475...1050A0C931R
Governor no. : F 002 A20 237

Cust. part No. : 3283921

Customer-spec. information
Customer : CUMMINS
Motor : CUMMINS-4BTA-3.9
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 115.0

Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

Rated speed rpm	: 475
Rack travel in mm	: 6.25
Tolerance mm	: + 0.10
Del. quantity	
cm ³ /1000 strokes	: 22.0
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 900

Del. quantity	
cm ³ /1000 strokes	: 115.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 99.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.30
Rated speed rpm	: 1110
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1195
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1500

rack travel mm	: 4.00
Rated speed rpm	: 1195

LOW IDLE

control lever	
position degree	: 79.0
tolerance degree	: + 4.0

Control lever difference

Grad	: 20.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.75
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 475
rack travel mm	: 6.25

Tolerance mm : \pm 0.10
rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.40
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 129.2

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.8
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.4
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 066 707

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...110UP2A618
Governor no. : 0 421 833 513

Cust. part No. : 3927356

Customer-spec. information

Customer : CDC
Motor : 6BTA ELITE
Power kW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 146.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

Del. quantity
cm3/1000 strokes : 24.5

Tolerance
cm3/1000 strokes : ± 2.0

Check tolerance
cm3/1000S. : ± 4.5

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 146.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1175

Tolerance 1/min : ± 5

rack travel mm : 6.50
Rated speed rpm : 1230

Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 81.0
tolerance degree : ± 4.0

Control lever difference
Grad : 19.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.90
Tolerance mm : ± 0.05

Testing:

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : \pm 30

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.35
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Pressure hPa : 545
rack travel mm : 9.75
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 066 709

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...1100POA632
Governor no. : 0 421 833 539

Cust. part No. : 3929672

Customer-spec. information

Customer : CDC
Motor : 6BTA ELITE
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

G08

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.20
Tolerance mm : ± 0.05

Del. quantity	
cm3/1000 strokes	: 138.5
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000s.	: ± 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000s.	: 7.5

Rated speed rpm	: 475
Rack travel in mm	: 5.40
Tolerance mm	: ± 0.20
Del. quantity	
cm3/1000 strokes	: 24.5
Tolerance	
cm3/1000 strokes	: ± 2.0
Check tolerance	
cm3/1000s.	: ± 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000s.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring	
pre-tension	
click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 138.5
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000s.	: ± 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000s.	: 7.5

CONTROL LEVER

control lever	
position degree	: 93.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.20
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 5.70
Rated speed rpm	: 1230
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 78.0
tolerance degree	: ± 4.0

Control lever difference	
Grad	: 15.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.90
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm	: 475
rack travel mm	: 5.40
Tolerance mm	: ± 0.20

rack travel mm : 2.00
Rated speed rpm : 630
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : < 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.20
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 975
rack travel mm : 11.50
Tolerance mm : + 0.20

Pressure hPa : 545
rack travel mm : 9.85
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.97
Test oil : ISO 4113

Combination No. : 0 402 066 713

Injection pump
Pump designation : PES6P110A120RS3357
EP type number : 0 412 016 754

Governor
Governor design. : RSV550...1100P2A677
Governor no. : 0 421 833 596

Cust. part No. : 3931957

Customer-spec. information
Customer : CDC
Motor : 6CTA ELITE
Power Kw : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity	
cm3/1000 strokes	: 195.5
<hr/>	
Tolerance	
cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 3.0
<hr/>	
Speed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 7.5
<hr/>	

Rated speed rpm	: 550
<hr/>	
Rack travel in mm	: 6.40
Tolerance mm	: + 0.20
Del. quantity	
cm3/1000 strokes	: 29.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure	
hPa	: 1800
Del. quantity	
cm3/1000 strokes	: 195.5
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 7.5

CONTROL LEVER

control lever	
position degree	: 97.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 12.00
Rated speed rpm	: 1170
Tolerance 1/min	: + 5

rack travel mm	: 6.40
Rated speed rpm	: 1230
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1375

rack travel mm	: 6.40
Rated speed rpm	: 1235

LOW IDLE

control lever	
position degree	: 77.0
tolerance degree	: + 4.0

Control lever difference	
Grad	: 22.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 550
rack travel mm	: 5.90
Tolerance mm	: + 0.10

Testing:

Rated speed rpm : 550
rack travel mm : 6.40
Tolerance mm : \pm 0.20

Rated speed rpm : 100
CRT mm min. : $<$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : \pm 0.20

Rated speed rpm : 950
rack travel mm : 13.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1800

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 11.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 1265
rack travel mm : 13.10
Tolerance mm : \pm 0.20
Pressure hPa : 875
rack travel mm : 12.15
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 212.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.02.96
Test oil : ISO 4113
Combination No. : 0 402 196 707
Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 62645

Customer-spec. information
Customer : DEERE
Motor : 6081HF007
Power KW : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery mark

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60

Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 402 736 910
Injection pump
Pump designation : PES6P120A120RS7432
EP type number : 0 412 726 967
Governor
Governor design. : RQV450...1100PA1317K
Governor no. : 0 421 815 545

Cust. part No. : 3931943

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 236.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 6.75
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1163
guide sleeve

travel mm : 7.50
Tolerance mm : ± 0.15

Rated speed rpm : 450
guide sleeve

travel mm : 1.33
Tolerance mm : ± 0.20

Rated speed rpm : 860
guide sleeve

travel mm : 4.55
Tolerance mm : ± 0.25

Rated speed rpm : 1560
guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1600

Del. quantity
cm³/1000 strokes : 236.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 113.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.90

Rated speed rpm : 1170

Tolerance 1/min : ± 15

rack travel mm : 3.00

Rated speed rpm : 1250

Tolerance 1/min : ± 5

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

control lever

position degree : 74.0

tolerance degree : ± 4.0

Control lever difference

Grad : 39.0

tolerance degree : ± 6.0

Testing:

Rated speed rpm : 450

rack travel mm : 6.75

Tolerance mm : ± 0.20

Rated speed rpm : 375
CRT mm min. : > 7.90
Rated speed rpm : 525

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.95
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 13.60
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1600

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : 13.25
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 1190
rack travel mm : 14.15
Tolerance mm : + 0.20

Pressure hPa : 1050
rack travel mm : 13.60
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 390

Check
speed 1/min : > 80
Check
speed 1/min : < 400

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 224.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 183.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.04.97
Test oil : ISO 4113

Combination No. : 0 402 736 914

Injection pump
Pump designation : PES6P120A120RS7370
EP type number : 0 412 726 934

Governor
Governor design. : RQV400...1250PA1315K
Governor no. : 0 421 815 542

Cust. part No. : 3932179

Customer-spec. information
Customer : CDC
Motor : 68TA-A
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.50
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.30
Check
tolerance *NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.75
Tolerance mm : + 0.05

Del. quantity cm ³ /1000 strokes	: 166.5
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance cm ³ /1000S.	: 12.0
<hr/>	

Rated speed rpm	: 375
<hr/>	
Rack travel in mm	: 6.20
Tolerance mm	: + 0.20
Del. quantity cm ³ /1000 strokes	: 19.5
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 5.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1412
guide sleeve travel mm	: 9.88
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 420
guide sleeve travel mm	: 1.56
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 1020
guide sleeve travel mm	: 5.97
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 2000
guide sleeve travel mm	: 13.50

Tolerance mm	: + 0.50
--------------	----------

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 166.5
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 118.0
tolerance degree	: + 6.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1325
Tolerance 1/min	: + 25
<hr/>	
rack travel mm	: 6.60
Rated speed rpm	: 1500
Tolerance 1/min	: + 5

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1700

LOW IDLE

control lever position degree	: 65.0
tolerance degree	: + 6.0

Control lever difference

Grad	: 53.0
tolerance degree	: + 6.0

Testing:

Rated speed rpm	: 375
rack travel mm	: 6.20
Tolerance mm	: + 0.20

Rated speed rpm : 275
CRT mm min. : > 7.00
Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.75
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.70
Tolerance mm : + 0.10

Rated speed rpm : 1000
rack travel mm : 12.40
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 9.40
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 440
rack travel mm : 12.55
Tolerance mm : + 0.30

Pressure hPa : 265
rack travel mm : 10.80
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 300

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 123.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.70
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 041

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV500...1100A0C923R
Governor no. : F 002 A20 231

Cust. part No. : 3932476

Customer-spec. information

Customer : CDC
Motor : 6BT
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prastroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.00
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 70.5
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance cm ³ /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 500
<hr/>	
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 18.5
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension	
click setting x	: 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 70.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 98.0
----------------------------------	--------

RATED SPEED	
rack travel mm	: 8.00
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1240
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1400

rack travel mm	: 4.00
Rated speed rpm	: 1250

LOW IDLE

control lever position degree	: 84.0
----------------------------------	--------

Control lever difference	
Grad	: 14.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 4.50
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm	: 500
rack travel mm	: 5.00

Tolerance mm : \pm 0.10
Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 9.60
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Combination No. : F 002 A0Z 042
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215
Governor
Governor design. : RSV500...1100A0C924R
Governor no. : F 002 A20 232

Cust. part No. : 3932477

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 78.5

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 6.0

Rated speed rpm	: 500
Rack travel in mm	: 5.10
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 18.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -

H01

Del. quantity	
cm3/1000 strokes	: 78.5
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 6.0

CONTROL LEVER

control lever	
position degree	: 95.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 8.80
Rated speed rpm	: 1165
Tolerance 1/min	: + 5

rack travel mm	: 5.40
Rated speed rpm	: 1235
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1400

rack travel mm	: 5.40
Rated speed rpm	: 1240

LOW IDLE

control lever	
position degree	: 80.0
tolerance degree	: + 4.0

Control lever difference	
Grad	: 15.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 4.60
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 500
rack travel mm	: 5.10

Tolerance mm : \pm 0.10
Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 90.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 402 046 862
Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770
Governor
Governor design. : RQV300...1250PA1149K
Governor no. : 0 421 815 416

Cust. part No. : CCEP 5141A 66-218

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.10
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

*NW after s.o.d. : -0.18
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.50
Difference ° CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 11.20
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 153.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -6.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1346
guide sleeve
travel mm : 10.55
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 905
guide sleeve
travel mm : 6.54
Tolerance mm : \pm 0.25

Rated speed rpm : 381
guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.25

Rated speed rpm : 431
guide sleeve
travel mm : 2.98
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : \pm 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1380

Rack travel in mm : 10.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 297.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1340
Tolerance 1/min : + 15

rack travel mm : -7.20
Rated speed rpm : 1420
Tolerance 1/min : + 5

rack travel mm : -10.70
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 244.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -6.30
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : < -5.20

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.35
Tolerance mm : + 0.15

Rated speed rpm : 350
rack travel mm : -1.80
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

H05

Rated speed rpm : 1250
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -1.90
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 160
rack travel mm : -1.30
Tolerance mm : + 0.10

Pressure hPa : 280
rack travel mm : -0.25
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 113.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 108.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113

Combination No. : 0 402 646 739

Injection pump
Pump designation : PE6P120A320LS7904
EP type number : 0 412 626 961

Governor
Governor design. : RQ750PA1326
Governor no. : 0 421 801 815

Cust. part No. : 04222 3926 KY

Customer-spec. information
Customer : KHD
Motor : BF6M1015/C
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
mfn. l/h : 250
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

H07

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 300.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 365.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 745
guide sleeve
travel mm : 4.54
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.24
Tolerance mm : \pm 0.20

Rated speed rpm : 860
guide sleeve
travel mm : 5.59
Tolerance mm : \pm 0.10

Rated speed rpm : 271

guide sleeve
travel mm : 1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 560
guide sleeve
travel mm : 3.24
Tolerance mm : \pm 0.10

Rated speed rpm : 1154
guide sleeve
travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1230
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 365.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 11.50

Rated speed rpm : 780
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	900

Rated speed rpm	:	751
rack travel mm	:	11.50

Rated speed rpm	:	781
Tolerance 1/min	:	+ 4
rack travel mm	:	5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50

Rated speed rpm	:	752
rack travel mm	:	11.50

Rated speed rpm	:	782
Tolerance 1/min	:	+ 4
rack travel mm	:	5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	900

Rated speed rpm	:	753
rack travel mm	:	11.50

Rated speed rpm	:	783
Tolerance 1/min	:	+ 4
rack travel mm	:	5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50

Rated speed rpm	:	754
rack travel mm	:	11.50

Rated speed rpm	:	784
Tolerance 1/min	:	+ 4
rack travel mm	:	5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	900

Rated speed rpm	:	755
rack travel mm	:	11.50

Rated speed rpm	:	785
Tolerance 1/min	:	+ 4
rack travel mm	:	5.50

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50

LOW IDLE

control lever		
position degree	:	67.0
tolerance degree	:	+ 4.0

TORQUE CONTROL

Rated speed rpm	:	700
rack travel mm	:	12.50
Tolerance mm	:	+ 0.05

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 560

Check		
speed 1/min	:	> 80
Check		
speed 1/min	:	< 580

STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.25
Tolerance mm	:	+ 0.75
Del. quantity		
cm ³ /1000 strokes	:	210.0
Tolerance		
cm ³ /1000 strokes	:	+ 20.0
Check tolerance		
cm ³ /1000S.	:	+ 24.0

LOW IDLE

Rated speed rpm	:	300
Del. quantity		
cm ³ /1000 strokes	:	20.0
Tolerance		
cm ³ /1000 strokes	:	+ 3.0
Check tolerance		
cm ³ /1000S.	:	+ 6.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000S.	:	12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump
Pump designation : PE8P120A320LS7875
EP type number : 0 412 628 881

Governor
Governor design. : RQV250...1150PA1346
Governor no. : 0 421 814 193

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : DV15T
Power kW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 16.00
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 222.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 5.60

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1207

guide sleeve
travel mm : 8.92

Tolerance mm : + 0.15

Rated speed rpm : 250

guide sleeve
travel mm : 1.31

Tolerance mm : + 0.20

Rated speed rpm : 1185

guide sleeve
travel mm : 8.60

Tolerance mm : + 0.25

Rated speed rpm : 640

guide sleeve
travel mm : 4.65

Tolerance mm : + 0.25

Rated speed rpm : 1390

guide sleeve
travel mm : 11.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1227

Rack travel in mm : 12.80

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 222.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 58.0

tolerance degree : + 4.0

control lever
position degree : 122.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

control lever
position degree : 21.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 150

CRT mm min. : $>$ 7.30

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Pressure hPa : 735
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 165
Rated speed rpm : $<$ 190

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 648 780A

Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: 2K
Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 295.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 4.50
Tolerance mm	: + 0.10
Del. quantity	
cm ³ /1000 strokes	: 15.0
Tolerance	
cm ³ /1000 strokes	: + 3.0
Check tolerance	
cm ³ /1000S.	: + 6.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1117
guide sleeve	
travel mm	: 10.27
Tolerance mm	: + 0.15

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.11
Tolerance mm	: + 0.20

Rated speed rpm	: 755
guide sleeve	
travel mm	: 6.17
Tolerance mm	: + 0.25

Rated speed rpm	: 480
guide sleeve	
travel mm	: 3.75
Tolerance mm	: + 0.25

Rated speed rpm	: 1330
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1182

Rack travel in mm	: 12.48
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1600
Del. quantity	
cm ³ /1000 strokes	: 295.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 121.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 11.65
Rated speed rpm	: 1120
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 350
-----------------	-------

rack travel mm	:	4.50
Tolerance mm	:	+ 0.10
Rated speed rpm	:	300
CRT mm min.	:	> 5.50
Rated speed rpm	:	400

TORQUE CONTROL

Rated speed rpm	:	1050
rack travel mm	:	12.65
Tolerance mm	:	+ 0.05
Rated speed rpm	:	500
rack travel mm	:	10.00
Tolerance mm	:	+ 0.10
Rated speed rpm	:	800
rack travel mm	:	11.80
Tolerance mm	:	+ 0.10
Rated speed rpm	:	950
rack travel mm	:	12.20
Tolerance mm	:	+ 0.10
Rated speed rpm	:	600
rack travel mm	:	10.80
Tolerance mm	:	+ 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	1050
Pressure hPa	:	1600
rack travel mm	:	12.65
Tolerance mm	:	+ 0.05
Pressure hPa	:	-
Rated speed rpm	:	1050
rack travel mm	:	8.30
Tolerance mm	:	+ 0.20

MEASUREMENT

Rated speed rpm	:	1050
Pressure hPa	:	1050
rack travel mm	:	11.80
Tolerance mm	:	+ 0.05
Pressure hPa	:	700
rack travel mm	:	9.50
Tolerance mm	:	+ 0.20

Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 270
Check speed 1/min	:	> 80
Check speed 1/min	:	< 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	1600
Rated speed rpm	:	500
Del. quantity cm ³ /1000 strokes	:	276.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 6.0

Aneroid pressure hPa	:	1600
Rated speed rpm	:	800
Del. quantity cm ³ /1000 strokes	:	299.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 6.0

Aneroid pressure hPa	:	-
Rated speed rpm	:	550
Del. quantity cm ³ /1000 strokes	:	209.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Speed Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	9.20
Tolerance mm	:	+ 0.30
Del. quantity cm ³ /1000 strokes	:	140.0
Tolerance cm ³ /1000 strokes	:	+ 15.0

Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97

Test oil : ISO 4113

Combination No. : 0 402 648 784

Injection pump

Pump designation : PE8P120A320LS7845

EP type number : 0 412 628 861

Governor

Governer design. : RQV350...1050PA1324

Governer no. : 0 421 814 187

Cust. part No. : 0280740202

Customer-spec. information

Customer : MB-NFZ

Motor : OM402 LA

Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8-7-2-6-3

: - 4- 1

Phasing : 0-45-90-135-180

: -270-315

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80

Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 208.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 13.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1107
guide sleeve travel mm	: 8.18
Tolerance mm	: ± 0.15
Rated speed rpm	: 350
guide sleeve travel mm	: 2.02
Tolerance mm	: ± 0.20
Rated speed rpm	: 890
guide sleeve travel mm	: 5.70
Tolerance mm	: ± 0.25
Rated speed rpm	: 550

guide sleeve travel mm	: 3.56
Tolerance mm	: ± 0.25
Rated speed rpm	: 1197
guide sleeve travel mm	: 10.00
Tolerance mm	: ± 0.25
Rated speed rpm	: 1290
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1154
Rack travel in mm	: 12.90
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1300
Del. quantity cm ³ /1000 strokes	: 208.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 121.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.80
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1175
Tolerance 1/min	: ± 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 7.10

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.60
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 14.20
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 10.80
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Pressure hPa : 350
rack travel mm : 0.65
Tolerance mm : \pm 0.05

Pressure hPa : 750
rack travel mm : 2.40
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 234.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1300
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113

Combination No. : 0 402 670 803

Injection pump
Pump designation : PE12P120A520/5RS7146
EP type number : 0 412 620 808

Governor
Governor design. : RSUV325...1150POA358
Governor no. : 0 421 829 105

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : TBD234V12

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-2A- 9-10A- 5- 6A
: 11-12A- 3- 4A- 7
: 8A (A=Abschalteleme
: nte)

Phasing : 0-30-60-90-120-150
: 180-210-240-270-300
: 330

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

Rated speed rpm	: 325
Rack travel in mm	: 6.10
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 35.0
Tolerance	
cm3/1000 strokes	: + 5.0
Check tolerance	
cm3/1000S.	: + 8.0
Spreed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 800
Aneroid pressure	
hPa	: 900

Del. quantity	
cm3/1000 strokes	: 261.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 60.0
tolerance degree	: + 4.0

control lever	
position degree	: 110.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 13.90
Rated speed rpm	: 1195
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1440

LOW IDLE

control lever	
position degree	: 73.0
tolerance degree	: + 4.0

control lever	
position degree	: 23.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 325
rack travel mm	: 6.60
Tolerance mm	: + 0.20

Testing:

Rated speed rpm	: 325
-----------------	-------

rack travel mm	:	6.10
Tolerance mm	:	+ 0.10
rack travel mm	:	2.00
Rated speed rpm	:	470
Tolerance 1/min	:	+ 30

TORQUE CONTROL

Rated speed rpm	:	800
rack travel mm	:	14.95
Tolerance mm	:	+ 0.05

Rated speed rpm	:	1150
rack travel mm	:	14.95
Tolerance mm	:	+ 0.10

Rated speed rpm	:	1100
rack travel mm	:	5.00
Tolerance mm	:	+ 0.10

Rated speed rpm	:	1100
rack travel mm	:	7.60
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa	:	-
Rated speed rpm	:	500
rack travel mm	:	9.50
Tolerance mm	:	+ 0.10

MEASUREMENT

Pressure hPa	:	725
rack travel mm	:	14.75
Tolerance mm	:	+ 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	900
Rated speed rpm	:	1150
Del. quantity		
cm3/1000 strokes	:	260.0
Tolerance		
cm3/1000 strokes	:	+ 3.0
Check tolerance		
cm3/1000S.	:	+ 6.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	1100
Del. quantity		
cm3/1000 strokes	:	0.1
Tolerance		
cm3/1000 strokes	:	+ 0.1

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	1100
Del. quantity		
cm3/1000 strokes	:	45.0
Tolerance		
cm3/1000 strokes	:	+ 25.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	130.0
Tolerance		
cm3/1000 strokes	:	+ 2.0
Check tolerance		
cm3/1000S.	:	+ 4.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes	:	220.0
Tolerance		
cm3/1000 strokes	:	+ 20.0

LOW IDLE

Rated speed rpm	:	325
Del. quantity		
cm3/1000 strokes	:	35.0
Tolerance		
cm3/1000 strokes	:	+ 5.0
Check tolerance		
cm3/1000S.	:	+ 8.0
Speed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113

Combination No. : 0 402 676 830

Injection pump
Pump designation : PE6P120A320LS7894
EP type number : 0 412 626 954

Governor
Governor design. : RSV600...1050POA642
Governor no. : 0 421 833 556

Cust. part No. : 0270746002

Customer-spec. information
Customer : MB-NFZ
Motor : CM 441 LA
Power KW : 285.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 105
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 19.00
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-45-120-165-240
: 5
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 13.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 89.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.70

Rated speed rpm : 1115

Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 600
rack travel mm : 4.10
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 630
Tolerance 1/min : ± 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1075
rack travel mm : 13.70
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 14.75
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 14.35
Tolerance mm : \pm 0.15

Start interlock

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 291.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113

Combination No. : 0 402 678 816

Injection pump
Pump designation : PE8P120A320LS7857
EP type number : 0 412 628 866

Goverrior
Governer design. : RSV550...1050POA826
: 3
Governer no. : 0 421 833 382

Cust. part No. : 0230743102

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1080

Rack travel in mm : 13.55

Tolerance mm	: + 0.05
Del. quantity cm ³ /1000 strokes	: 260.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 550
Rack travel in mm	: 3.80
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 19.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring pre-tension click setting x	: 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1080
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 260.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 90.0
tolerance degree	: + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1111
Tolerance 1/min	: + 1
rack travel mm	: 12.50
Rated speed rpm	: 1145
Tolerance 1/min	: + 4
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm	: 1113
Tolerance 1/min	: + 1
rack travel mm	: 12.50

Rated speed rpm	: 1147
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm	: 1115
Tolerance 1/min	: + 1
rack travel mm	: 12.50

Rated speed rpm	: 1149
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1117
Tolerance 1/min : \pm 1
rack travel mm : 12.50

Rated speed rpm : 1151
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1119
Tolerance 1/min : \pm 1
rack travel mm : 12.50

Rated speed rpm : 1153
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 12.50

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 3.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1080
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 292.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 678 835

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV350...1050POA673
Governor no. : 0 421 833 590

Cust. part No. : 0270746802

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power kW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 4- 1

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	272.0
<hr/>	
Tolerance	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Spread	
<hr/>	
Tolerance	
cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	9.0
<hr/>	

Rated speed rpm :	350
Rack travel in mm :	5.00
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	19.0
Tolerance	
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Spread	
Tolerance	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
governor spring	
pre-tension	
click setting x :	3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1050
-------------------	------

J06

Aneroid pressure	
hPa :	1200
Del. quantity	
cm ³ /1000 strokes :	272.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Spread	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	96.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	14.30
Rated speed rpm :	1095
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1185
Tolerance 1/min :	+ 5

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1400

LOW IDLE

control lever	
position degree :	75.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	350
rack travel mm :	5.00
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	395
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.50
---------------	---------

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Pressure hPa : 400
rack travel mm : 1.70
Tolerance mm : \pm 0.05

Pressure hPa : 1000
rack travel mm : 6.65
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 746 603

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIHR062045 A41
Power kW : 183.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Tolerance mm	: + 0.05
Del. quantity cm ³ /1000 strokes	: 197.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: -6.70
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 36.0
Tolerance cm ³ /1000 strokes	: +- 2.0
Check tolerance cm ³ /1000S.	: + 5.0
Spreed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1145
guide sleeve travel mm	: 6.55
Tolerance mm	: + 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 1.75
Tolerance mm	: + 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 594
guide sleeve travel mm	: 5.11
Tolerance mm	: + 0.10
Rated speed rpm	: 720
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10
Rated speed rpm	: 1380
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 800
Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 197.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 276.0
tolerance degree	: + 4.0
RATED SPEED	
rack travel mm	: -1.00
Rated speed rpm	: 1130
Tolerance 1/min	: + 15
rack travel mm	: -8.40
Rated speed rpm	: 1260
Tolerance 1/min	: + 5

rack travel mm : -11.90
Tolerance mm : \pm 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 254.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.70
Tolerance mm : \pm 0.10

rack travel mm : -10.30
Rated speed rpm : 475
Tolerance 1/min : \pm 20

Rated speed rpm : 175

CRT mm min. : $<$ -4.80

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.75
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 220
rack travel mm : -0.85
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -1.25
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 746 606

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: 1K
Governor no. : 0 421 815 497

Cust. part No. : 9279607

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve

travel mm : 10.27
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve

travel mm : 1.86
Tolerance mm : + 0.20

Rated speed rpm : 756
guide sleeve

travel mm : 6.17
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve

travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve

travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure

hPa : 1600
Del. quantity

cm³/1000 strokes : 205.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance

cm³/1000S. : + 4.0
Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1090

Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195

Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 7.40

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 12.70
Tolerance mm : \pm 0.15

Rated speed rpm : 950
rack travel mm : 13.35
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.45
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 10.55
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 402 746 606A

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: 1K
Governor no. : 0 421 815 497

Cust. part No. : 9279607

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4.

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve
travel mm : 10.05
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.86
Tolerance mm : + 0.20

Rated speed rpm : 749
guide sleeve
travel mm : 6.11
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 1090
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 7.40

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 12.70
Tolerance mm : \pm 0.15

Rated speed rpm : 950
rack travel mm : 13.35
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.45
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 10.55
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113
Combination No. : 0 402 746 640
Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925
Governor
Governor design. : RQV300...1050PA1191
Governor no. : 0 421 814 114

Cust. part No. : CCEP 5147C 66-223

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45 C4
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.95
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.70
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 700

Del. quantity cm ³ /1000 strokes	: 199.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: -7.20
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 31.0
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 5.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1140
guide sleeve travel mm	: 8.49
Tolerance mm	: ± 0.25
Rated speed rpm	: 300
guide sleeve travel mm	: 1.33
Tolerance mm	: ± 0.25
Rated speed rpm	: 754
guide sleeve travel mm	: 6.10
Tolerance mm	: ± 0.25
Rated speed rpm	: 365

guide sleeve travel mm	: 2.40
Tolerance mm	: ± 0.25
Rated speed rpm	: 415
guide sleeve travel mm	: 3.28
Tolerance mm	: ± 0.25
Rated speed rpm	: 460
guide sleeve travel mm	: 3.86
Tolerance mm	: ± 0.25
Rated speed rpm	: 1460
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1230
Rack travel in mm	: 11.70
Tolerance mm	: ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 199.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 302.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1150
Tolerance 1/min	: ± 5

rack travel mm : -8.70
Rated speed rpm : 1305
Tolerance 1/min : + 15

rack travel mm : -12.20
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 266.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.20
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm max. : < -4.80

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 700
Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 140
rack travel mm : -0.80

Tolerance mm : + 0.15
Pressure hPa : 200
rack travel mm : -0.35
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113
Combination No. : 0 402 746 645
Injection pump
Pump designation : PES6P120A320RS7364
EP type number : 0 412 726 930
Governor
Governor design. : RGV300...1050PA1204
Governor no. : 0 421 814 123

Cust. part No. : CCEP 5148A 66-236

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45D41
Power KW : 219.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.90
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity cm ³ /1000 strokes	: 290.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: -7.60
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 26.0
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 5.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1135
guide sleeve travel mm	: 8.45
Tolerance mm	: ± 0.25
Rated speed rpm	: 300
guide sleeve travel mm	: 1.33
Tolerance mm	: ± 0.25
Rated speed rpm	: 752
guide sleeve travel mm	: 6.09
Tolerance mm	: ± 0.25
Rated speed rpm	: 365

guide sleeve travel mm	: 2.40
Tolerance mm	: ± 0.25
Rated speed rpm	: 415
guide sleeve travel mm	: 3.28
Tolerance mm	: ± 0.25
Rated speed rpm	: 460
guide sleeve travel mm	: 3.86
Tolerance mm	: ± 0.25
Rated speed rpm	: 1460
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1230
Rack travel in mm	: 11.70
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 290.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 303.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1135
Tolerance 1/min	: ± 5

rack travel mm : -9.90
Rated speed rpm : 1305
Tolerance 1/min : \pm 15

rack travel mm : -13.40
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 267.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -5.10

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.45

Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : -0.50
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97

Test oil : ISO 4113

Combination No. : 0 402 746 649

Injection pump

Pump designation : PES6P120A320RS7359

EP type number : 0 412 726 925

Governor

Governor design. : RQ275/1050PA1217

Governor no. : 0 421 801 782

Cust. part No. : CCEP5150A 66

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR062045 I-341

Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 320

Tolerance l/h : ± 20.0

Test nozzle holder

assembly : 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -1.45

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1137
guide sleeve
travel mm : 6.37
Tolerance mm : + 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.37
Tolerance mm : + 0.10

Rated speed rpm : 1050

guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 391
guide sleeve
travel mm : 4.37
Tolerance mm : + 0.10

Rated speed rpm : 490
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 275.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1120
Tolerance 1/min : + 5

rack travel mm : -8.50
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : -12.00
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.80
Tolerance mm : + 0.10

rack travel mm : -10.40
Rated speed rpm : 375
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : < -5.70

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -0.85
Tolerance mm : + 0.15

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80

Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275

Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113

Combination No. : 0 402 890 301

Injection pump
Pump designation : PE12P120A520LS8525
EP type number : 0 412 820 203

Governor
Governor design. : RE30
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7552

Customer-spec. information

Customer : MAN
Motor : D 2842 LE 404
Power KW : 956.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1A- 5-9A- 8- 3A- 4
: 11A- 10- 2A- 6 7A
: 12 (A=Abschaltelem
: ent)

Phasing : 0-15-60-75-120-135
: 180-195-240-255-300
: 315

Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance *NW : ± 0.75

Barrel no. : 12

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm3/1000 strokes : 180.0
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 9.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.940
Del. quantity
cm3/1000 strokes : 0.1

Tolerance
cm³/1000 strokes : ± 0.1
Check tolerance
cm³/1000S. : ± 0.1

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 15.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.080
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113

Combination No. : 0 402 946 031

Injection pump
Pump designation : PES6P120A32ORS8038
EP type number : 0 412 926 032

Governor
Governor design. : RQ250/1000PA1265-2
Governor no. : 0 421 801 822

Cust. part No. : 1385102

Customer-spec. information

Customer : SCANIA
Motor : DSC 9.15

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.70

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 300.0
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 9.0
<hr/>	
Spread	
<hr/>	
Tolerance cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance cm ³ /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 250
Rack travel in mm	: 5.10
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 40.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1076
guide sleeve travel mm	: 4.72
Tolerance mm	: + 0.15
Rated speed rpm	: 250
guide sleeve travel mm	: 1.25
Tolerance mm	: + 0.20
Rated speed rpm	: 1000
guide sleeve travel mm	: 4.50
Tolerance mm	: + 0.10
Rated speed rpm	: 418

guide sleeve travel mm	: 3.50
Tolerance mm	: + 0.10
Rated speed rpm	: 540
guide sleeve travel mm	: 4.50
Tolerance mm	: + 0.10
Rated speed rpm	: 1680
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1522
Rack travel in mm	: 11.70
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 300.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 9.0
Spread	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 42.0
tolerance degree	: + 4.0
control lever position degree	: 106.0
tolerance degree	: + 4.0
RATED SPEED	
rack travel mm	: 11.70
Rated speed rpm	: 1045
Tolerance 1/min	: + 5
Check speed 1/min	: + 10
rack travel mm	: 4.00

Rated speed rpm : 1200
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 27.0
tolerance degree : + 4.0

control lever
position degree : 23.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.10
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 8.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.70
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 12.70
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.70
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 11.75
Tolerance mm : + 0.15

Pressure hPa : 550
rack travel mm : 12.40
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000s. : + 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 6.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000s. : + 24.0

LOW IDLE

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 403 436 104

Injection pump
Pump designation : PES6MW100/120RS1143
EP type number : 0 413 406 137

Governor
Governor design. : RQV350...1200MW82-1
Governor no. : 0 420 083 153

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTA-830
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance cm ³ /1000S.	: + 3.0
<hr/>	
Spread	
Tolerance cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance cm ³ /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 350
Rack travel in mm	: 7.50
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 16.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 4.5
Spread	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 800
guide sleeve travel mm	: 5.20
Tolerance mm	: + 0.30
<hr/>	
Rated speed rpm	: 1250
guide sleeve travel mm	: 7.70
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 1350
guide sleeve travel mm	: 8.80
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 350
guide sleeve travel mm	: 1.40
Tolerance mm	: + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure hPa	: 700
Del. quantity cm ³ /1000 strokes	: 145.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 3.0
Spread	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 104.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.40
Rated speed rpm	: 1255
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1390
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1500

LOW IDLE

control lever position degree	: 70.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 7.50
Tolerance mm	: + 0.10

Rated speed rpm	: 200
CRT mm min.	: > 9.50
Rated speed rpm	: 430

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Pressure hPa : 390
Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : \pm 0.10

Pressure hPa : 500
rack travel mm : 12.20
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 144.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.07.95
Test oil : ISO 4113

Part no. : 0 460 424 063
Pump designation : VE4/12F1150R374-1

Customer-spec. information
Customer : CDC
Motor : 4 BTA 3.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55

Tolerance mm + : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Setting mm : 4.2
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.8
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.4
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12

Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1220
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 35.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
SV travel mm : 5.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 2.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1220

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1245
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. + : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1280
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 82.4
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.3
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 str. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.8
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 35.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2

Dimension MS mm : 1,2
Tolerance mm + : 0,2
SVS dimension mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,8..47,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.95
Test oil : ISO 4113

Part no. : 0 460 426 256
Pump designation : VE6/12F1250R498-8

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.2
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity	:	
ccm/10s	:	63.8
Tolerance	:	
ccm/10s	+ :	22.2
Check tolerance	:	
ccm/10s	+ :	22.2
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	1250
Aneroid pressure	:	
hPa	:	1000
Overflow quantity	:	
ccm/10s	:	77.7
Tolerance	:	
ccm/10s	+ :	27.7
Check tolerance	:	
ccm/10s	+ :	27.7
Shutoff solenoid	:	
Volt	:	12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm	:	1380
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	60.5
Tolerance	:	
cm3/1000 str.	+ :	3.0
Check tolerance	:	
cm3/1000S.	+ :	6.0
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	1465
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	22.0
Check tolerance	:	
cm3/1000S.	+ :	10.0
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	1510
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	1.5
Tolerance	:	
cm3/1000 str.	+ :	1.5
Check tolerance	:	
cm3/1000S.	+ :	1.5
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	600

Aneroid pressure	:	
hPa	:	450
Del. quantity	:	
cm3/1000 strokes	:	79.5
Tolerance	:	
cm3/1000 str.	+ :	0.5
Check tolerance	:	
cm3/1000S.	+ :	4.0
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	1250
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	84.0
Tolerance	:	
cm3/1000 str.	+ :	1.5
Check tolerance	:	
cm3/1000S.	+ :	3.0
Shutoff solenoid	:	
Volt	:	12

Rated speed rpm	:	500
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	97.0
Tolerance	:	
cm3/1000 str.	+ :	5.0
Shutoff solenoid	:	
Volt	:	12
Rated speed rpm	:	850
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	84.5
Tolerance	:	
cm3/1000 str.	+ :	0.5
Check tolerance	:	
cm3/1000S.	+ :	3.0
Shutoff solenoid	:	
Volt	:	12

MECHANICAL SHUTOFF

Rated speed rpm	:	1250
Aneroid pressure	:	
hPa	:	1000
Del. quantity	:	
cm3/1000 strokes	:	1.5
Tolerance	:	
cm3/1000 str.	+ :	1.5
Check tolerance	:	
cm3/1000S.	+ :	1.5
Shutoff solenoid	:	
Volt	:	12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,3
Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.08.95
Test oil : ISO 4113

Part no. : 0 460 424 105
Pump designation : VE4/12F1150R587

Customer-spec. information
Customer : MAN
Motor : D 0824 LUE 521
Power KW : 103.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Setting mm : 2.4
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1225
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.2
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 450
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1125
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1225
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 8.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1295

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. + : 7.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1265
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 20.0
Check tolerance
cm³/1000S. + : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Aneroid pressure
hPa : 400

LDA/
HSA stroke mm : 7.5
Del. quantity
cm³/1000 strokes : 101.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1125
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Aneroid pressure
hPa : 200
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 str. + : 4.5
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 170
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.5
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,45
Tolerance mm ± : 0,15

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.03.96
Test oil : ISO 4113

Part no. : 0 460 424 107
Pump designation : VE4/12F1150R609

Customer-spec. information

Customer : MAN
Motor : D 0824 LUE 522
Power KW : 92.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Setting mm : 2.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1250
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.2
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 8.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. + : 16.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 7.0
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 106.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 105.5
Tolerance
cm³/1000 str. + : 4.5
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 170
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.0
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4

Tolerance mm ± : 0,2
Dimension MS mm : 1,3
Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.96
Test oil : ISO 4113
Part no. : 0 460 426 222
Pump designation : VE6/12F1100R543

Customer-spec. information
Customer : MAN
Motor : D 0826 LE 521
Power KW : 140.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Setting mm : 2.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 370
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 str. + : 3.5
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1200
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 900
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : -20.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.2

Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.3
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.9

Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 8.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1290
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000S. + : 7.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1320
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1240
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. + : 20.0
 Check tolerance
 cm³/1000S. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 350

LDA/
 HBA stroke mm : 6.8
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 95.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 650
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 104.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 97.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 str. + : 6.0
Check tolerance
cm³/1000S. + : 6.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -30.0
Tolerance
cm³/1000 str. + : 10.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Tolerance mm + : 1.0
Check
tolerance mm + : 1.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.8
Dimension KF mm : 6,0
Tolerance mm + : 0,2
MS1 dimension mm : 1,2
Tolerance mm + : 0,2
SVS dimension mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,4..40,4
Control lever
position YB mm : 43,4..48,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.91
Test oil : ISO 4113
Part no. : 0 460 484 047
Pump designation : VE4/8F2300R425

Customer-spec. information
Customer : PSA
Motor : XUD 9A (1.9L.)

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar \pm : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar \pm : 3

Test lines : 1 680 750 073

Cutside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.6
Tolerance mm \pm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.5
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 28.4
Tolerance
cm³/1000 str. \pm : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. \pm : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. \pm : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. \pm : 1.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. ± : 13.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.5
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 1.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 4.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6
Check tolerance
ccm/10s ± : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s ± : 20.8
Check tolerance
ccm/10s ± : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 24.0
 Check tolerance
 cm³/1000S. ± : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2900
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 32.1
 Tolerance
 cm³/1000 str. ± : 1.0
 Check tolerance
 cm³/1000S. ± : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 29.3
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 28.4
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -11.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 5.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Check tolerance
 cm³/1000S. ± : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.1
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. +- : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,0
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,2

End of test-specification sheet

BOSCH IIV. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.95
Test oil : ISO 4113
Part no. : 0 460 484 097
Pump designation : VE4/8F2300R425-10

Customer-spec. information
Customer : PSA
Motor : XUD9 A-L
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 U22

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 30.2
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 13.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -6.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2900
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 31.3
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 30.2
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. +- : 5.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.5
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.03.92
Test oil : ISO 4113
Part no. : 0 460 484 055
Pump designation : VE4/8F2300R425-2

Customer-spec. information
Customer : PSA
Motor : XUD9A-N2 BVA

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.6
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 30.2
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 7.5
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm3/1000 strokes : 9.5
Tolerance
cm3/1000 str. +- : 1.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 13.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 1.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 4.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8
Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2900
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 31.3
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 30.2
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.2

Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -11.5
 Tolerance
 cm³/1000 str. + : 5.0
 Check tolerance
 cm³/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.5
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.96
Test oil : ISO 4113
Part no. : 0 460 424 098
Pump designation : VE4/12F1175R533

Customer-spec. information

Customer : MWM
Motor : TD 226-B4
Power KW : 70.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 4.4
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump pressure bar : 7.2
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 77.3
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 275
Del. quantity cm³/1000 strokes : 10.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 3.5
Check tolerance cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1175
Del. quantity cm³/1000 strokes : 53.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 900
 SV travel mm : 5.2
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 2.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 7.9
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 41.6

Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Overflow quantity
 ccm/10s : 125.0
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1175
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 8.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. ± : 7.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Check tolerance
 cm³/1000s. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 72.5
 Tolerance
 cm³/1000 str. ± : 1.5

Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 76.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 70.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 77.3
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1100
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 275
 Del. quantity
 cm3/1000 strokes : 1.5

Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 275
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm3/1000 strokes : 75.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm3/1000 strokes : 120.0
 Tolerance
 cm3/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm \pm : 0,1
Dimension KF mm : 6,4
Tolerance mm \pm : 0,2
MS1 dimension mm : 1,3
Tolerance mm \pm : 0,2
SVS dimension mm : 1,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.08.96
Test oil : ISO 4113

Part no. : 3 282 816
Pump designation : VE6/12F1100R373-5B

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Setting mm : 1.5
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 81.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 66.5
Tolerance
cm3/1000 str. + : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000S. : 9.0
 Check tolerance
 cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 530
 Del. quantity
 cm³/1000 strokes : 8.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1185
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. +- : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.8
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 2.9
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s +- : 20.8

Check tolerance
 ccm/10s +- : 20.8

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1185
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1260
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 530
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 530
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 280
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,2
Tolerance mm + : 0,2
SVS dimension mm : 2,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,0..47,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.08.96
Test oil : ISO 4113

Part no. : 3 919 004
Pump designation : VE6/12F1150R373-5C

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Setting mm : 1.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 66.5
Tolerance
cm³/1000 str. ± : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000s. : 9.0
 Check tolerance
 cm³/1000s. : 4.5

IDLE SETTING

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 11.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1185
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 66.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6

Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.0
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 2.9
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s ± : 20.8

Check tolerance
 ccm/10s ± : 20.8

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1185
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. + : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1260
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 280
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,2
Tolerance mm +- : 0,2
SVS dimension mm : 2,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,0..47,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.08.96
Test oil : ISO 4113

Part no. : 0 460 426 211
Pump designation : VE6/12F1250R498

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm +- : 0,02(0,06)
Outlet : 0

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Setting mm : 1.7
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 8.0
 Tolerance
 cm3/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm3/1000 strokes : 5.5
 Check tolerance
 cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm3/1000 strokes : 60.5
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 85.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450

SV travel mm : 2.4
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s + : 27.7

 Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 1465
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000S. + : 10.0
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 1510
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 600

Aneroid pressure
 hPa : 450
 Del. quantity
 cm³/1000 strokes : 79.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 84.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 97.0
 Tolerance
 cm³/1000 str. + : 5.0
 Shutoff solenoid
 Volt : 24

 Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 84.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.08.96
Test oil : ISO 4113
Part no. : 3 282 309
Pump designation : VE6/12F1250R498B

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 SV travel mm : 2.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1200
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1200
 SV travel mm : 0.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 7.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 6.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 4.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s + : 27.7

 Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1465
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000S. + : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1510
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 450
 Del. quantity
 cm³/1000 strokes : 81.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 83.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 str. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 83.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,4
Tolerance mm + : 0,2
MS1 dimension mm : 1,35
Tolerance mm + : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.08.96
Test oil : ISO 4113
Part no. : 3 282 306
Pump designation : VE6/12F1250R498C

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 83.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 65.1
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 6.0
Check tolerance
cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 SV travel mm : 2.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 500

Aneroid pressure
 hPa : 1200
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1200
 SV travel mm : 0.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 7.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 6.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 4.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1465
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1510
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500

Aneroid pressure
hPa : 460
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,35
Tolerance mm +- : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113
Part no. : 3 917 038
Pump designation : VE6/12F1250R373-3A

Customer-spec. information
Customer : CDC
Motor : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

M16

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 1.6
Tolerance mm + : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar + : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 82.5
Tolerance cm³/1000 str. + : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 40.5
Tolerance cm³/1000 str. + : 0.5
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 6.0
Tolerance cm³/1000 str. + : 2.0
Spread cm³/1000 strokes : 5.5

Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 2.7
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.6
Tolerance bar ± : 0.3

Rated speed rpm : 500

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.4
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s ± : 20.8

Check tolerance
ccm/10s ± : 20.8

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 6.0

Rated speed rpm : 1330
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Check tolerance
cm³/1000s. ± : 20.0

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5

Rated speed rpm : 700

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.5

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. ± : 4.0

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0

START TRANSITION

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
MS1 dimension mm : 1,65
Tolerance mm ± : 0,15
SVS dimension mm : 1,8

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,7..48,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113

Part no. : 3 921 244
Pump designation : VE6/12F1100R373-5B

Customer spec. information
Customer : CDC
Motor : 6 BT 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

Setting mm : 1.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 66.5
Tolerance
cm³/1000 str. ± : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000s. : 9.0
 Check tolerance
 cm³/1000s. : 4.5

IDLE SETTING

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1185
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 66.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.8
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 2.9
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s +- : 20.8

Check tolerance
 ccm/10s +- : 20.8

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1185
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1260
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. ± : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm3/1000 strokes : 65.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 280
Del. quantity
cm3/1000 strokes : 110.0
Tolerance
cm3/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,2
Tolerance mm + : 0,2
SVS dimension mm : 2,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,0..47,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.08.96
Test oil : ISO 4113
Part no. : 3 916 920
Pump designation : VE6/12F1150R381-7A

Customer spec. information
Customer : CUMMINS
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

M23

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump pressure bar : 4.0
Tolerance bar + : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 73.5
Tolerance cm³/1000 str. + : 0.5
Spread cm³/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 11.0
Tolerance cm³/1000 str. + : 3.0
Shutoff solenoid Volt : 24
Spread cm³/1000 strokes : 5.5
Check tolerance cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150

Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
SV travel mm : 5.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
SV travel mm : 1.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 5.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 2.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000s. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0

Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 73.5
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 4.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 73.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

M25

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 240
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 130
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm + : 0,2
 Dimension MS mm : 1,0
 Tolerance mm + : 0,2
 SVS dimension mm : 1,6

CONTROL LEVER POSITION SET

Control lever
 position YA mm : 34,8..38,8
 Control lever
 position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.08.96
Test oil : ISO 4113
Part no. : 3 916 922
Pump designation : VE6/12F1150R381-7B

Customer-spec. information
Customer : CUMMINS
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

M27

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm + : 0.5
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 4.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150

Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
SV travel mm : 5.2
Tolerance mm + : 0.5
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
SV travel mm : 1.7
Tolerance mm + : 0.6
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 5.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 2.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000s. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 4.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 24

NO1

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,0
Tolerance mm ± : 0,2
SVS dimension mm : 1,6

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113
Part no. : 3 282 815
Pump designation : VE6/12F1050R381-7C

Customer-spec. information
Customer : CUMMINS
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02(0,06)
Outlet : 0

Prestroke

N02

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump pressure bar : 4.0
Tolerance bar + : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity cm3/1000 strokes : 73.5
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 535
Del. quantity cm3/1000 strokes : 7.0
Tolerance cm3/1000 str. + : 3.0
Shutoff solenoid Volt : 24
Spread cm3/1000 strokes : 5.5
Check tolerance cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150

Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
SV travel mm : 5.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
SV travel mm : 1.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 5.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 2.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1170
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000s. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1230
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 530
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

NO4

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,0
Tolerance mm + : 0,2
SVS dimension mm : 1,6

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8
Control lever
position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.08.96
Test oil : ISO 4113

Part no. : 0 460 424 078
Pump designation : VE4/12F1100R389-2

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm +- : 0,02(0,06)
Outlet : A

Prestroke

N06

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check
tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

Setting mm : 5.3
Tolerance mm +- : 0.5
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 81.0
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 70.5
Tolerance
cm3/1000 str. +- : 3.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 425

Del. quantity	
cm ³ /1000 strokes	: 12.0
Tolerance	
cm ³ /1000 str. ±	: 4.0
Shutoff solenoid	
Volt	: 24
Spread	
cm ³ /1000 strokes	: 5.5
Check tolerance	
cm ³ /1000S.	: 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm	: 1145
Pressure hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 58.0
Tolerance	
cm ³ /1000 str. ±	: 5.0
Shutoff solenoid	
Volt	: 24

STARTING FUEL DELIVERY

Rated speed rpm	: 100
Del. quantity	
cm ³ /1000 strokes	: 100.0
Tolerance	
cm ³ /1000 str. ±	: 40.0
Shutoff solenoid	
Volt	: 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
SV travel mm	: 6.6
Tolerance mm ±	: 0.5
Check	
tolerance mm ±	: 0.7
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 500
Aneroid pressure	
hPa	: 1000
SV travel mm	: 4.2
Tolerance mm ±	: 0.5

Check	
tolerance mm ±	: 0.7
Shutoff solenoid	
Volt	: 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 6.6
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 750
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 5.3
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 500
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 4.2
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

OVERFLOW QUANTITY

Rated speed rpm	: 500
Overflow quantity	
ccm/10s	: 62.5
Tolerance	
ccm/10s ±	: 20.8

Check tolerance	
ccm/10s ±	: 20.8
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1000
Overflow quantity	
ccm/10s	: 97.2
Tolerance	
ccm/10s ±	: 41.6

Check tolerance	
ccm/10s ±	: 41.6
Shutoff solenoid	
Volt	: 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1145
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 5.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. + : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 430
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 81.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 40.0
Shutoff solenoid
Vclt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,2
Tolerance mm ± : 0,2
SVS dimension mm : 2,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 16.08.96
Test oil : ISO 4113
Part no. : 3 283 378
Pump designation : VE4/12F1150R389-2B

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar \pm : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar \pm : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm \pm : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm \pm : 0,02
Check
tolerance mm \pm : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

Setting mm : 3.6
Tolerance mm \pm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. \pm : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. \pm : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 360

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 40.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 5.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 365
 Del. quantity
 cm³/1000 strokes : 63.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 360
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 420
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 230
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 130
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. + : 40.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm + : 0,2
 Dimension MS mm : 1,2
 Tolerance mm + : 0,2
 SVS dimension mm : 2,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,3..47,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.08.96
Test oil : ISO 4113
Part no. : 3 282 734
Pump designation : VE4/12F1100R389-2C

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm + : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 5.3
Tolerance mm + : 0.5
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 81.0
Tolerance cm3/1000 str. + : 1.5
Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 70.5
Tolerance cm3/1000 str. + : 3.5
Shutoff solenoid Volt : 24
Check tolerance cm3/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 425

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1145
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. +- : 5.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 40.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 6.6
Tolerance mm +- : 0.5
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 24
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm +- : 0.6

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s +- : 20.8

Check tolerance
ccm/10s +- : 20.8
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1145
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 5.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. + : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 430
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 81.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 40.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,2
Tolerance mm +- : 0,2
SVS dimension mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,2..47,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113
Part no. : 3 282 732
Pump designation : VE4/12F1050R389-2D

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm + : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 72.8
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 70.5
Tolerance cm3/1000 str. + : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1145
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 40.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 5.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1145
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1180
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 430
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 78.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 83.5
 Tolerance
 cm³/1000 str. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 72.8
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 40.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,2
Tolerance mm ± : 0,2
SVS dimension mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,2..47,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113
Part no. : 3 917 517
Pump designation : VE4/12F1050R389-2E

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm + : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check tolerance mm + : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 72.8
Tolerance cm³/1000 str. + : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 70.5
Tolerance cm³/1000 str. + : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375

Del. quantity	
cm ³ /1000 strokes	: 11.0
Tolerance	
cm ³ /1000 str. ±	: 3.0
Shutoff solenoid	
Volt	: 24
Spread	
cm ³ /1000 strokes	: 5.5
Check tolerance	
cm ³ /1000s.	: 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm	: 1145
Pressure hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 58.0
Tolerance	
cm ³ /1000 str. ±	: 3.0
Shutoff solenoid	
Volt	: 24

STARTING FUEL DELIVERY

Rated speed rpm	: 100
Del. quantity	
cm ³ /1000 strokes	: 100.0
Tolerance	
cm ³ /1000 str. ±	: 40.0
Shutoff solenoid	
Volt	: 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
SV travel mm	: 5.1
Tolerance mm ±	: 0.4
Check	
tolerance mm ±	: 0.7
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 500
Aneroid pressure	
hPa	: 1000
SV travel mm	: 2.1
Tolerance mm ±	: 0.4

Check	
tolerance mm ±	: 0.7
Shutoff solenoid	
Volt	: 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 6.6
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 750
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 5.3
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 500
Aneroid pressure	
hPa	: 1000
Supply pump	
pressure bar	: 4.2
Tolerance bar ±	: 0.3
Shutoff solenoid	
Volt	: 24

OVERFLOW QUANTITY

Rated speed rpm	: 500
Overflow quantity	
ccm/10s	: 62.5
Tolerance	
ccm/10s ±	: 20.8

Check tolerance	
ccm/10s ±	: 20.8
Shutoff solenoid	
Volt	: 24

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
Overflow quantity	
ccm/10s	: 97.2
Tolerance	
ccm/10s ±	: 41.6

Check tolerance	
ccm/10s ±	: 41.6
Shutoff solenoid	
Volt	: 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1145
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 58.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 35.0
 Check tolerance
 cm3/1000S. +- : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1180
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 430
 Del. quantity
 cm3/1000 strokes : 77.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 78.0
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 83.5
 Tolerance
 cm3/1000 str. +- : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 72.8
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 2.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 2.0

Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 40.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,2
Tolerance mm +- : 0,2
SVS dimension mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,3..47,8

End of test-specification sheet